

Access DB# 90165**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: WYROZEBSKI Examiner #: 71177 Date: 3/27/03  
Art Unit: 1714 Phone Number 306-5875 Serial Number: 09/856,845 /  
Mail Box and Bldg/Room Location: CP3, SE09 Results Format Preferred (circle): PAPER DISK E-MAIL

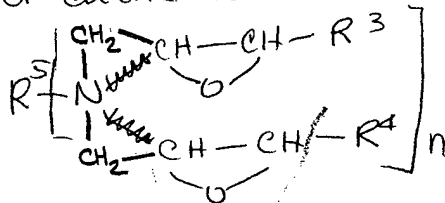
If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*  
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.  
Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples of relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Rubber CompositionInventors (please provide full names): SAITO et al 28Earliest Priority Filing Date: 9/27/1999

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for diene rubber modified with



R<sup>3,4,5</sup> C1-C6  
hydrocarbon  
ether and  
tertiary amine

Use in tires w/ silica &amp; vulcanizing agent

Thank you.

## STAFF USE ONLY

## Type of Search

## Vendors and cost where applicable

Searcher: ES NA Sequence (#) \_\_\_\_\_ STN \$298.77  
Searcher Phone #: \_\_\_\_\_ AA Sequence (#) \_\_\_\_\_  
Searcher Location: \_\_\_\_\_ Structure (#) (4) (Subsets) Dialog  
Date Searcher Picked Up: \_\_\_\_\_ Bibliographic (and) Questel/Orbit  
Date Completed: 3-28-03 Litigation \_\_\_\_\_ Dr. Link  
Searcher Prep & Review Time: 5 Fulltext \_\_\_\_\_ Sequence Systems  
Clerical Prep Time: \_\_\_\_\_ Patent Family \_\_\_\_\_ WWW/Internet  
Online Time: 65 Other \_\_\_\_\_ Other (specify) \_\_\_\_\_

=> file reg

FILE 'REGISTRY' ENTERED AT 11:28:01 ON 28 MAR 2003  
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=> d his

FILE 'HCAPLUS' ENTERED AT 10:43:22 ON 28 MAR 2003

L1 65662 S SAITO ?/AU  
L2 68987 S YAMADA ?/AU  
L3 15952 S KUBO ?/AU  
L4 27 S NAKAFUTAMI ?/AU  
L5 1 S L1 AND L2 AND L3 AND L4  
SEL L5 1 RN

FILE 'REGISTRY' ENTERED AT 10:44:53 ON 28 MAR 2003

L6 9 S E1-E9  
L7 3 S L6 AND N/ELS  
L8 6 S L6 NOT L7  
E BUTADIENE/CN  
L9 2 S E3  
SEL L9 1-2 RN  
EDIT E1-E2 /BI /CRN  
L10 9124 S E1-E2

FILE 'LREGISTRY' ENTERED AT 10:55:06 ON 28 MAR 2003

L11 STR

FILE 'REGISTRY' ENTERED AT 11:01:09 ON 28 MAR 2003

L12 50 S L11  
L13 2485 S L11 FUL  
SAV L13 WYR845/A

FILE 'LREGISTRY' ENTERED AT 11:07:39 ON 28 MAR 2003

L14 STR L11

FILE 'REGISTRY' ENTERED AT 11:09:11 ON 28 MAR 2003

L15 50 S L14 SSS SAM SUB=L13  
L16 1514 S L14 SSS FUL SUB=L13  
SAV L16 WYR845A/A  
L17 10 S L13 AND L10

FILE 'HCAPLUS' ENTERED AT 11:11:50 ON 28 MAR 2003

L18 7 S L17

FILE 'REGISTRY' ENTERED AT 11:11:53 ON 28 MAR 2003

L19 6 S L16 AND L10

FILE 'HCAPLUS' ENTERED AT 11:12:58 ON 28 MAR 2003

L20 6 S L19  
L21 296530 S L10 OR ?DIENE?  
L22 5183 S L13  
L23 4276 S L16  
L24 353 S L21 AND (L22 OR L23)  
L25 356589 S RUBBER?  
L26 315560 S VULCAN? OR SULFERIZ? OR SULFERIS? OR SULFURIZ? OR SULFU  
L27 22505 S TIRE# OR TYRE#

FILE 'REGISTRY' ENTERED AT 11:17:23 ON 28 MAR 2003

E SILICA/CN  
L28 1 S E3

FILE 'HCAPLUS' ENTERED AT 11:18:10 ON 28 MAR 2003

L29 619418 S L28 OR (SILICON OR SI) (W) (OXIDE# OR DIOXIDE#) OR SILICA  
L30 17 S L24 AND L27  
L31 269 S L24 AND L25  
L32 141 S L31 AND L26  
L33 28 S L31 AND L29  
L34 18 S L32 AND L33

FILE 'LREGISTRY' ENTERED AT 11:19:05 ON 28 MAR 2003

L35 STR

FILE 'REGISTRY' ENTERED AT 11:20:50 ON 28 MAR 2003

L36 0 S L35 SSS SAM SUB=L13  
L37 9 S L35 SSS FUL SUB=L13  
SAV L37 WYR845B/A

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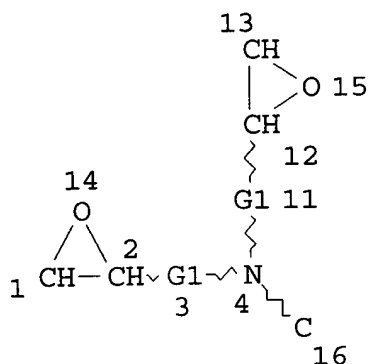
L38 1 S L37

FILE 'HCAPLUS' ENTERED AT 11:21:39 ON 28 MAR 2003

L39 4 S L37  
L40 11 S L18 OR L20 OR L39  
L41 30 S (L30 OR L34) NOT L40

FILE 'REGISTRY' ENTERED AT 11:28:01 ON 28 MAR 2003

=> d l13 que stat  
L11 STR



REP G1=(0-1) CH2  
 NODE ATTRIBUTES:  
 NSPEC IS RC AT 16  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE  
 L13 2485 SEA FILE=REGISTRY SSS FUL L11

100.0% PROCESSED 28714 ITERATIONS  
 SEARCH TIME: 00.00.01

2485 ANSWERS

=> file caold  
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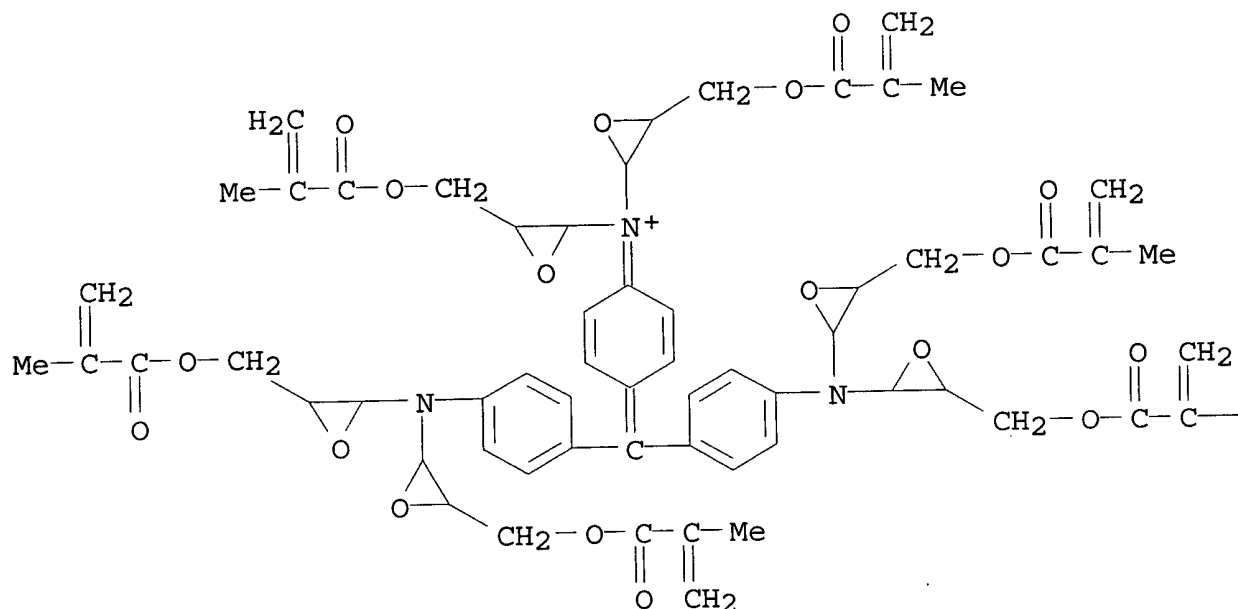
FILE COVERS 1907-1966  
 FILE LAST UPDATED: 01 May 1997 (19970501/UP)

=> d l38 1 all hitstr

L38 ANSWER 1 OF 1 CAOLD COPYRIGHT 2003 ACS  
 AN CA62:9283g CAOLD  
 TI dyeing of cuprammonium fibers graft copolymerized with glycidyl  
 methacrylate  
 AU Nakahara, Yasuji  
 IT 632-99-5 10162-36-4 29003-32-5  
 IT 10162-36-4 29003-32-5

RN 10162-36-4 CAOLD  
 CN Ammonium, [4-[4-[bis(1,2-epoxy-3-hydroxypropyl)amino]-.alpha.-[p-[bis(1,2-epoxy-3-hydroxypropyl)amino]phenyl]-3-methylbenzylidene]-2,5-cyclohexadien-1-ylidene]bis(1,2-epoxy-3-hydroxypropyl)-, chloride, hexamethacrylate (ester) (8CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

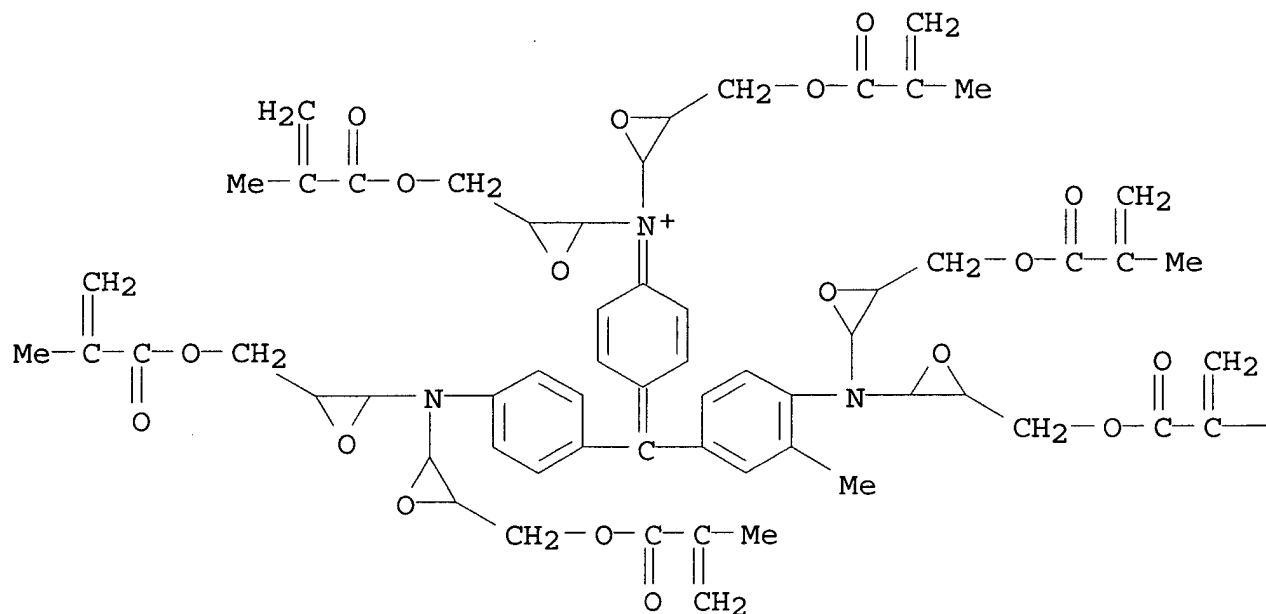
● Cl<sup>-</sup>

— Me

RN 29003-32-5 CAOLD  
 CN Ammonium, [4-[4-[bis(1,2-epoxy-3-hydroxypropyl)amino]-.alpha.-[p-

[bis(1,2-epoxy-3-hydroxypropyl)amino]phenyl]-3-methylbenzylidene]-  
2,5-cyclohexadien-1-yliden]bis(1,2-epoxy-3-hydroxypropyl)-,  
chloride, hexamethacrylate (ester) (8CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

● Cl<sup>-</sup>

— Me

=&gt; file hcaplus

FILE 'HCAPLUS' ENTERED AT 11:29:10 ON 28 MAR 2003

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=> d 140 1-11 cbib abs hitstr hitind

L40 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1996:709783 Document No. 125:342732 Silver halide photographic material containing hydrazine derivative and poly(alkylene oxide) compound. Yasuda, Shoji; Yasuda, Tomokazu (Fuji Photo Film Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08211526 A2 19960820 Heisei, 56 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-37814 19950203.

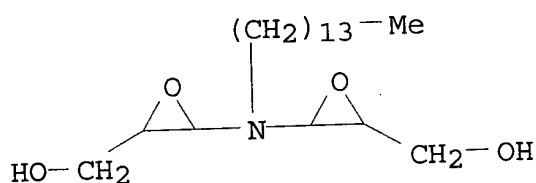
AB The material contains .gtoreq.1 hydrazine deriv. and .gtoreq.1 of R1AtX1GmY1 and R1AtX3CO(CHOH)nY2 [G = glycidyl; R1 = C1-40 aliph. group; A = arylene; X1, X3 = divalent group; Y1 = H, (CH2CH2O)iH, anionic group; Y2 = H, anionic group; i = 1-500; m = 1-50; n = 3-7; t = 0, 1] in the Ag halide emulsion layer or other hydrophilic colloidal layers. The material shows good development latitude and gives high contrast images by using low pH developer.

IT 183287-80-1  
(surfactant; photog. film contg. hydrazine deriv. and poly(alkylene oxide) compd .)

RN 183287-80-1 HCAPLUS  
CN Oxiranemethanol, 3,3'-(tetradecylimino)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 183287-79-8  
CMF C20 H39 N O4



IC ICM G03C001-043  
ICS G03C001-06  
CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 126879-21-8 138575-14-1 183287-80-1 183287-82-3  
183287-83-4 183287-84-5  
(surfactant; photog. film contg. hydrazine deriv. and poly(alkylene oxide) compd .)

L40 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2003 ACS

1994:411374 Document No. 121:11374 Epoxy resin adhesive compositions. Sugimori, Masahiro; Kato, Takeshi; Ibuki, Tsutomu (Mitsubishi Rayon Co, Japan). Jpn. Kokai Tokkyo Koho JP 05339553 A2 19931221 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-147599 19920608.

AB The title compns. with good heat resistance and high peel strength contain (A) prereaction products contg. substantially no phenolic OH which are prepd. from epoxy resins and bifunctional phenols, (B) polyfunctional epoxy resins, (C) arom. amine compds., (D) rubber component, and optionally (F) thermoplastic resins with glass transition temp.  $\geq 200^\circ\text{C}$ . Thus, reaction of Epikote 807 (I) 400, ELM 100 (triglycidylamine epoxy resin) 300, and tetramethylbisphenol A 300 g gave a preproduct (II). Sep., 750 g I and 250 g CTBN 1300.times.13 (CO<sub>2</sub>H-modified acrylonitrile-butadiene copolymer) were heated at  $170^\circ\text{C}$  to obtain a rubber preproduct, 35 parts of which was blended with II 30, YH 434L (tetraglycidylamine epoxy resin) 35, diaminodiphenyl sulfone 40, and Victrex PES 500SP (polyether polysulfone) 10 parts to give an adhesive for steel plates.

IT 155942-79-3

(adhesives, heat-resistant)

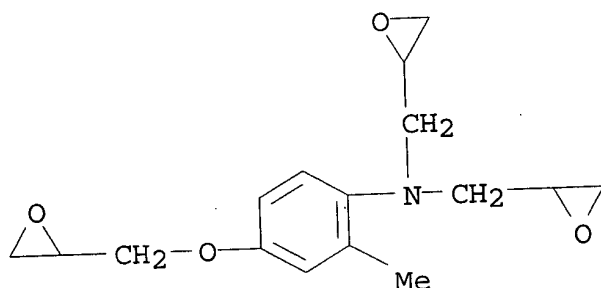
RN 155942-79-3 HCAPLUS

CN 2-Propenenitrile, polymer with 1,3-butadiene, (chloromethyl)oxirane, methylenebis[phenol], N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine], 4,4'-(1-methylethylidene)bis[2,6-dimethylphenol], N-[2-methyl-4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)oxiranemethanamine and ar,ar'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 110656-67-2

CMF C16 H21 N O4

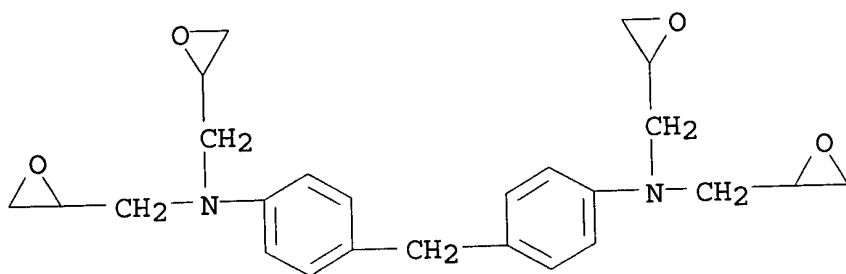


CM 2

CRN 28768-32-3

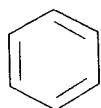
CMF C25 H30 N2 O4



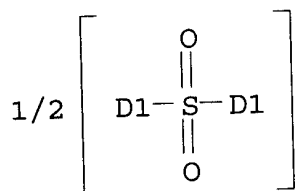


CM 3

CRN 27133-91-1  
CMF C12 H12 N2 O2 S  
CCI IDS

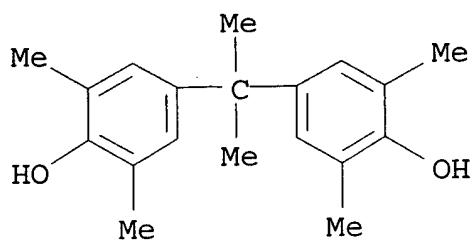


D1-NH2



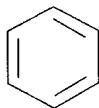
CM 4

CRN 5613-46-7  
CMF C19 H24 O2

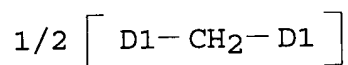


CM 5

CRN 1333-16-0  
 CMF C13 H12 O2  
 CCI IDS

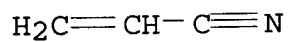


D1-OH



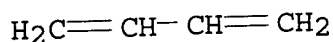
CM 6

CRN 107-13-1  
 CMF C3 H3 N



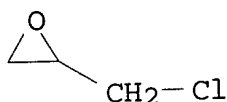
CM 7

CRN 106-99-0  
 CMF C4 H6



CM 8

CRN 106-89-8  
CMF C3 H5 Cl O



IC ICM C09J163-00  
ICS C09J163-00  
CC 38-3 (Plastics Fabrication and Uses)  
IT 155942-79-3  
(adhesives, heat-resistant)

L40 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1994:272467 Document No. 120:272467 Epoxy adhesives for repair of composite structures. Part V. Dodiuk, H.; Buchman, A.; Liran, I.; Kenig, S. (RAFAEL, M.O.D., Haifa, 31021, Israel). Journal of Adhesion, 40(2-4), 127-38 (English) 1993. CODEN: JADNAJ. ISSN: 0021-8464.

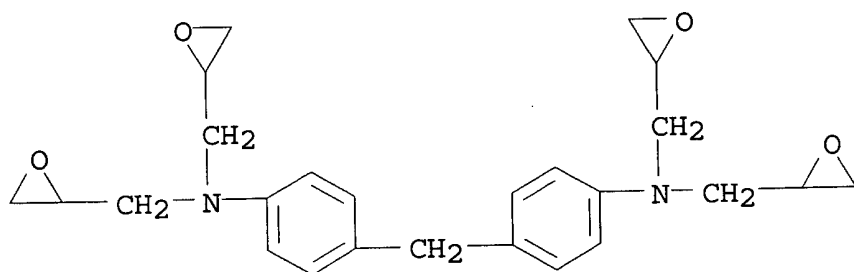
AB A reduced temp. epoxy formulation for repair of epoxy-graphite composite laminates was characterized. The epoxy formulation comprised selected high functionality arom. epoxy resins and a multi-component polyamine curing system contg. an elastomeric toughener. Exptl. results for bonding graphite-epoxy specimens have shown that, compared with a 175.degree.C com. film adhesive, the proposed formulation has better low temp. shear strength, comparable ambient properties, and lower elevated temp. (120.degree.) shear properties. The epoxy formulation exhibits the same in-plane shear modulus as the com. material and a plastic behavior at high shear strains. Consequently, the fatigue endurance of the epoxy formulation has been found to be superior to that of the 175.degree.C com. film adhesive.

IT 154733-11-6  
(adhesives, for repair of graphite fiber-epoxy laminates)

RN 154733-11-6 HCAPLUS  
CN 2-Propenenitrile, polymer with N,N'-bis(2-aminoethyl)-1,2-ethanediamine, 1,3-butadiene, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine] and N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)oxiranemethanamine (9CI)  
(CA INDEX NAME)

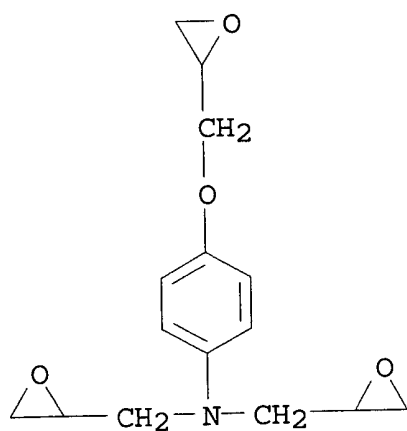
CM 1

CRN 28768-32-3  
CMF C25 H30 N2 O4



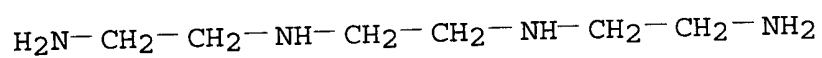
CM 2

CRN 5026-74-4  
CMF C15 H19 N O4



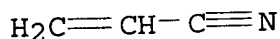
CM 3

CRN 112-24-3  
CMF C6 H18 N4



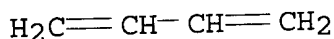
CM 4

CRN 107-13-1  
CMF C3 H3 N



CM 5

CRN 106-99-0  
CMF C4 H6



CC 38-3 (Plastics Fabrication and Uses)  
IT 154733-11-6  
(adhesives, for repair of graphite fiber-epoxy laminates)

L40 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1994:219957 Document No. 120:219957 Modified polysiloxane curable compositions. Muramoto, Hiroo; Kubo, Hideo; Kurayama, Isao (Nippon Soda Co, Japan). Jpn. Kokai Tokkyo Koho JP 05271518 A2 19931019 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-101834 19920327.

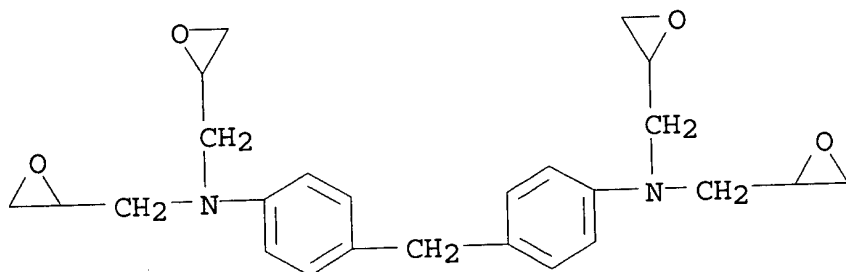
AB The title compns. giving cured products with low modulus without lowering glass temp. (Tg), useful for semiconductor sealants, etc., comprise (A) modified siloxanes X(Y)n (X = polymer block contg. p-alkenylphenol; Y = siloxane block; n = 1-2), where 1/99 .ltoreq. X/Y .ltoreq. 90/10, no.-av. mol. wt. (Mn) 500-100,000, (B) epoxy resins, and (C) hardeners. Thus, 0.25 mol PTBST (p-tert-butoxystyrene) and 0.45 mol hexamethylcyclotrisiloxane were treated to obtain a prepolymer, which was treated in MEK with Cl gas to give p-vinylphenol-polydimethylsiloxane block copolymer with 13,000 Mn. Then, 10 parts of the polymer was blended with YD 128 (bisphenol A epoxy resin) 90, HN 5500 70, and 1B2MS (1-benzyl-2-methylimidazole) 0.9 part, then the compn. was hardened in a mold at 100.degree. for 5 h and at 200.degree. for 5 h to give test pieces showing shrinkage 3.0%, steel plate/steel plate tensile shear adhesion strength 168 kg/cm<sup>2</sup>, Al/Al peel adhesion strength 3.3 kg/25-mm, Tg 118.degree., dielec. const. 3.0, and tan.delta. 11 .times. 10<sup>-3</sup>.

IT 154387-55-0  
(crosslinked, heat-resistant, for sealants for semiconductors)

RN 154387-55-0 HCAPLUS  
CN Phenol, 4-(1-methylethenyl)-, polymer with 1,3-butadiene, hexahydromethyl-1,3-isobenzofurandione, hexamethylcyclotrisiloxane and N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine] (9CI) (CA INDEX NAME)

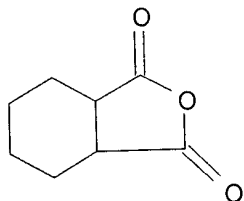
CM 1

CRN 28768-32-3  
CMF C25 H30 N2 O4



CM 2

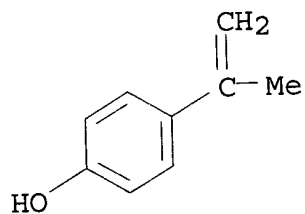
CRN 25550-51-0  
CMF C9 H12 O3  
CCI IDS



D1-Me

CM 3

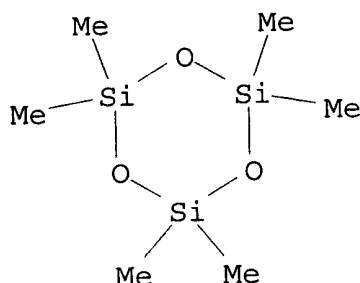
CRN 4286-23-1  
CMF C9 H10 O



CM 4

CRN 541-05-9

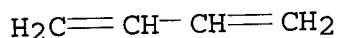
CMF C6 H18 O3 Si3



CM 5

CRN 106-99-0

CMF C4 H6



IC ICM C08L063-00

ICS C08G059-40; C08L063-00; C08L083-10

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

IT 154387-51-6 154387-52-7 154387-53-8 154387-54-9

154387-55-0 154387-56-1 154387-57-2

(crosslinked, heat-resistant, for sealants for semiconductors)

L40 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2003 ACS

1993:23393 Document No. 118:23393 Polybutadiene- and polymaleimide-containing epoxy resin compositions for laminates and their cured products. Oshimi, Fumiaki; Otsuki, Yutaka; Kubota, Susumu; Enomoto, Masami (Nippon Oil Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04114027 A2 19920415 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-230568 19900903.

AB The title compns., useful for dielec. and heat- and fire-resistant printed circuit boards, contain (A) adducts of phenols and butadiene (co)polymers with no.-av. mol. wt. 500-5000 and contg. .gtoreq.50% 1,2-confuration 100, (B) brominated epoxy resins 50-100, (C) .gtoreq.2 maleimide-contg. compds. 75-125, and (D) crosslinking accelerators 0.05-5.0 parts. Thus, a 700:1000 o-cresol-Nisseki B 1000 adduct 100, YDB 400 79.4, YH 434 (epoxy resin) 26.5, MB 7000 (bismaleimide) 88.2, and additives 3.3 parts in mixed solvents were

blended, impregnated glass cloths, and dried at 150.degree. for 15 min to give prepregs, 8 layers of which were laminated with Cu foils, and press-molded at 200.degree. to give test pieces showing dielec. const. 3.9, loss tangent 0.07 (both 1 MHz), good solder heat resistance, and UL-94 flame retardancy V-0.

IT 145197-34-8P

(prepn. of, dielec., heat- and fire-resistant, for printed circuit boards)

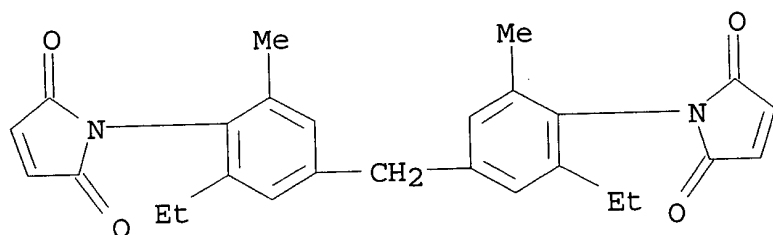
RN 145197-34-8 HCAPLUS

CN 1H-Pyrrole-2,5-dione, 1,1'-[methylenebis(2-ethyl-6-methyl-4,1-phenylene)]bis-, polymer with 1,3-butadiene, (chloromethyl)oxirane, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine], 4,4'-(1-methylethylidene)bis[2,6-dibromophenol] and 2-methylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 105391-33-1

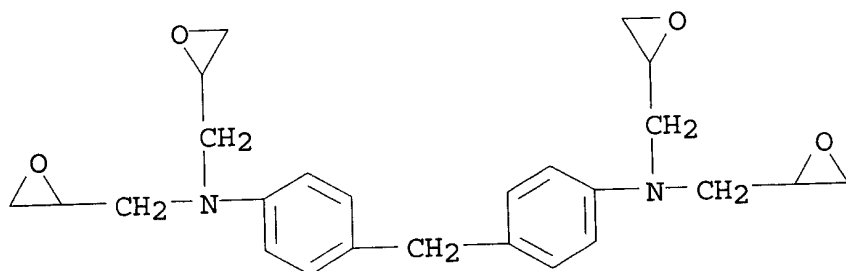
CMF C27 H26 N2 O4



CM 2

CRN 28768-32-3

CMF C25 H30 N2 O4

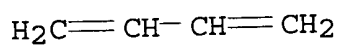


CM 3

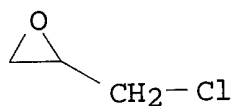
CRN 106-99-0



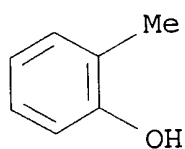
CMF C4 H6



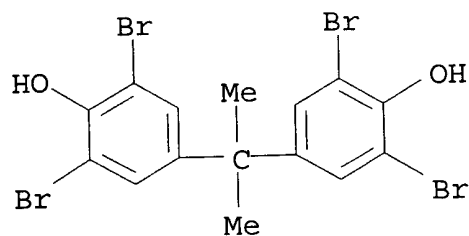
CM 4

CRN 106-89-8  
CMF C3 H5 Cl O

CM 5

CRN 95-48-7  
CMF C7 H8 O

CM 6

CRN 79-94-7  
CMF C15 H12 Br4 O2IC ICM C08G059-62  
ICS C08G059-30; C08G059-40; C08J005-24; H05K001-03

ICI C08L023-18  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 39, 76  
IT 144307-33-5P 145197-34-8P  
(prepn. of, dielec., heat- and fire-resistant, for printed circuit boards)

L40 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1990:480052 Document No. 113:80052 Epoxy resin adhesives with mixed aromatic hardeners for flexible circuit boards. Suzuki, Akiyasu; Igawa, Katsuhiko; Takahashi, Toshinobu (Yokohama Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01304165 A2 19891207 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-134603 19880601.

AB Chem. resistant elec. insulating adhesive bonds which are not damaged by flexing are formed from epoxy resin compns. cured with gallic acid esters and diaminodiphenylmethanes and/or phenylenediamines, and alc. and/or phenol curing accelerators. Thus, the epoxy resins Sumiepoxy ELA 15, Sumiepoxy ELM 100, R 1348, and Sumiepoxy ESB 700 were mixed with flame retardants, Nipol 1072 (elastomer), Kayabond C 100 (3,3'-dimethyl-4,4'-diaminodiphenylmethane), Me gallate, dicumyl peroxide, and BuOH to give an adhesive. Then, Cu foil sheets were bonded to polyimide films using the adhesive and cured at 150-170.degree. for 1-3 h to give boards with good flexibility, which showed solvent resistance (bond strength retention after 15 min in MEK at 23.degree.) 90% and insulation resistance 6.4 .times. 10<sup>13</sup> .OMEGA., vs. 57% and 5.7 .times. 10<sup>12</sup> .OMEGA. using a similar adhesive without the Me gallate or BuOH.

IT 128583-75-5 128583-76-6 128583-77-7  
(adhesives, for flexible circuit boards, solvent-resistant, elec. insulating)

RN 128583-75-5 HCAPLUS  
CN Benzoic acid, 3,4,5-trihydroxy-, methyl ester, polymer with ACR-R 1348, 1,3-butadiene, 4,4'-methylenbis[2-methylbenzenamine], N-[2-methyl-4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)oxiranemethanamine, 2-methyl-2-propenoic acid, 2-propenenitrile, Sumiepoxy ELA 115 and Sumiepoxy ESB 700 (9CI) (CA INDEX NAME)

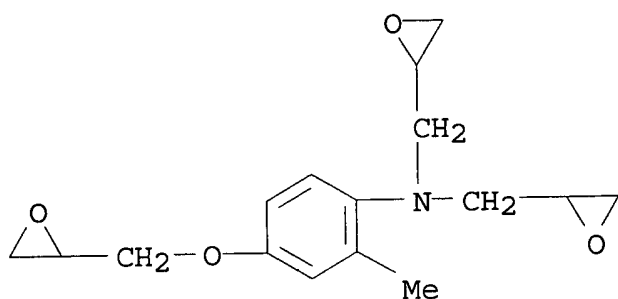
CM 1

CRN 127829-95-2  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 110656-67-2  
CMF C16 H21 N O4



CM 3

CRN 102381-44-2  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

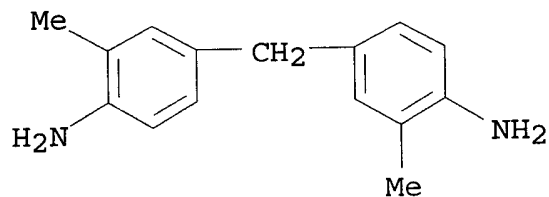
CM 4

CRN 61642-77-1  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

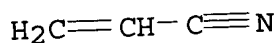
CM 5

CRN 838-88-0  
CMF C15 H18 N2



CM 6

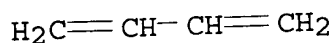
CRN 107-13-1  
CMF C3 H3 N



CM 7

CRN 106-99-0

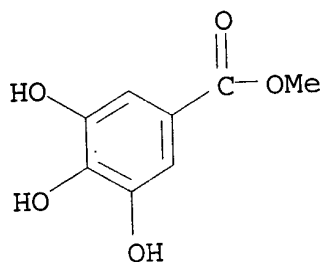
CMF C4 H6



CM 8

CRN 99-24-1

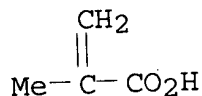
CMF C8 H8 O5



CM 9

CRN 79-41-4

CMF C4 H6 O2



RN 128583-76-6 HCAPLUS

CN Benzoic acid, 3,4,5-trihydroxy-, propyl ester, polymer with ACR-R  
 1348, 1,3-butadiene, 4,4'-methylenebis[2-methylbenzenamine],  
 N-[2-methyl-4-(oxiranylmethoxy)phenyl]-N-  
 (oxiranylmethyl)oxiranemethanamine, 2-methyl-2-propenoic acid,  
 2-propenenitrile, Sumiepoxy ELA 115 and Sumiepoxy ESB 700 (9CI) (CA  
 INDEX NAME)

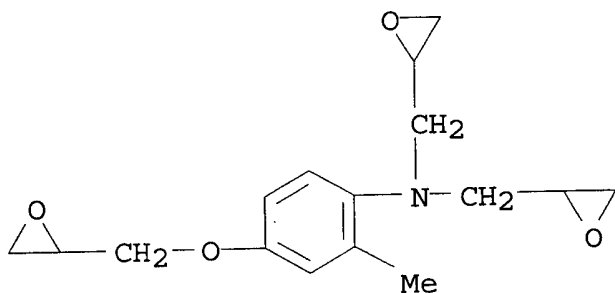
CM 1

CRN 127829-95-2  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 110656-67-2  
CMF C16 H21 N O4



CM 3

CRN 102381-44-2  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

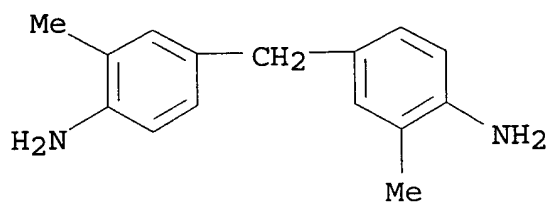
CM 4

CRN 61642-77-1  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 5

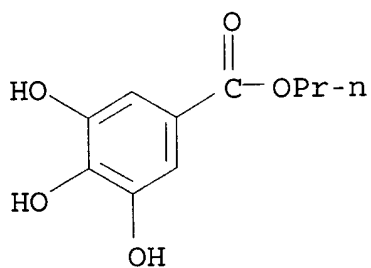
CRN 838-88-0  
CMF C15 H18 N2



CM 6

CRN 121-79-9

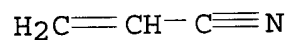
CMF C10 H12 O5



CM 7

CRN 107-13-1

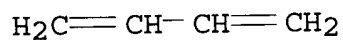
CMF C3 H3 N



CM 8

CRN 106-99-0

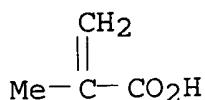
CMF C4 H6



CM 9

CRN 79-41-4

CMF C4 H6 O2



RN 128583-77-7 HCAPLUS  
 CN Benzoic acid, 3,4,5-trihydroxy-, methyl ester, polymer with ACR-R  
 1348, 1,3-butadiene, 4,4'-methylenebis[2,6-diethylbenzenamine],  
 N-[2-methyl-4-(oxiranylmethoxy)phenyl]-N-  
 (oxiranylmethyl)oxiranemethanamine, 2-methyl-2-propenoic acid,  
 2-propenenitrile, Sumiepoxy ELA 115 and Sumiepoxy ESB 700 (9CI) (CA  
 INDEX NAME)

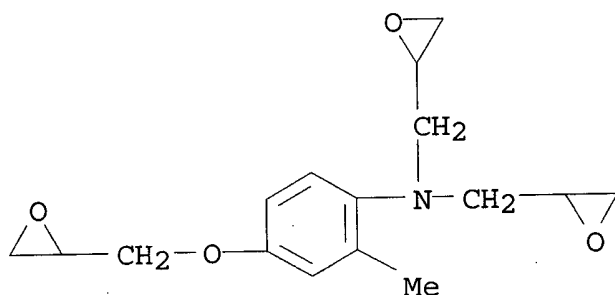
CM 1

CRN 127829-95-2  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 110656-67-2  
 CMF C16 H21 N O4



CM 3

CRN 102381-44-2  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 4

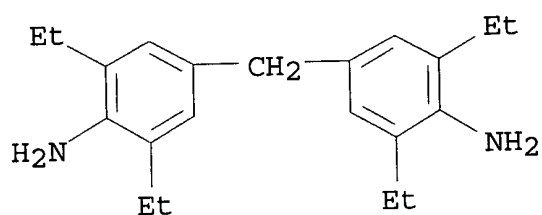
CRN 61642-77-1

CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

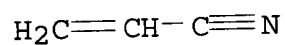
CM 5

CRN 13680-35-8  
CMF C21 H30 N2



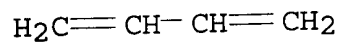
CM 6

CRN 107-13-1  
CMF C3 H3 N



CM 7

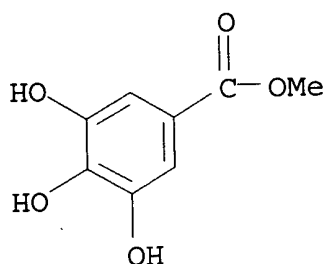
CRN 106-99-0  
CMF C4 H6



CM 8

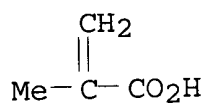
CRN 99-24-1  
CMF C8 H8 O5





CM 9

CRN 79-41-4  
CMF C4 H6 O2



IC ICM C09J003-16  
ICA C08G059-50; C08G059-62  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76  
IT 128583-75-5 128583-76-6 128583-77-7  
128818-30-4  
(adhesives, for flexible circuit boards, solvent-resistant, elec. insulating)

L40 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1989:214356 Document No. 110:214356 Manufacture of epoxy resin adhesives for oil-coated steel sheets. Inaike, Toshihiro; Kunitura, Masaru; Niihama, Masaaki; Kawanishi, Kenji (Ube Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63227681 A2 19880921 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-63051 19870318.  
AB The title adhesives are manufd. by dispersing solid reactive rubbers in reactive diluents (liq. at normal temp.) uniformly, then mixing with epoxy resins. Thus, 50 g Hycar 1072 (I) was mixed with 150 g alkylphenol monoglycidyl ether, and kneaded to give a uniform mixt., 40 g of which was kneaded with 160 g Epikote 828 for 2 h, and with 4 parts dicyandiamide and 6 g amorphous silica for 1 h to give an adhesive compn. Then, a piece of steel sheet coated with an anticorrosive oil was laminated with a Teflon spacer, coated with the adhesive compn., laminated the other oil-coated steel sheet, and cured at 180.degree. for 20 min to give a test specimen with tensile shear strength (5 mm/min) 269 kg/cm<sup>2</sup>, vs. 173 when using natural rubber RSS 1 instead of I.

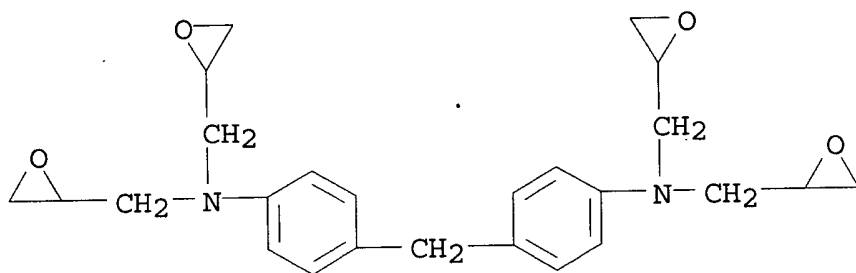
IT 120705-06-8  
(adhesives, for oil-coated steel sheets)

RN 120705-06-8 HCAPLUS  
 CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with  
 N,N'-bis(2-methylphenyl)guanidine, 1,3-butadiene,  
 (chloromethyl)oxirane, cyanoguanidine, N,N'-(methylenedi-4,1-  
 phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine],  
 4,4'-(1-methylethylidene)bis[phenol], 2-propenenitrile and  
 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3

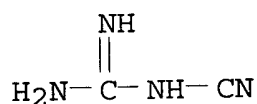
CMF C25 H30 N2 O4



CM 2

CRN 461-58-5

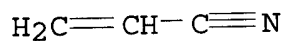
CMF C2 H4 N4



CM 3

CRN 107-13-1

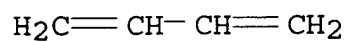
CMF C3 H3 N



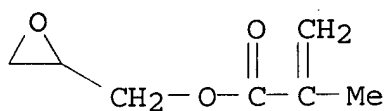
CM 4

CRN 106-99-0

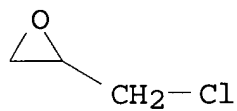
CMF C4 H6



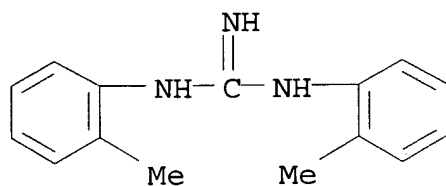
CM 5

CRN 106-91-2  
CMF C7 H10 O3

CM 6

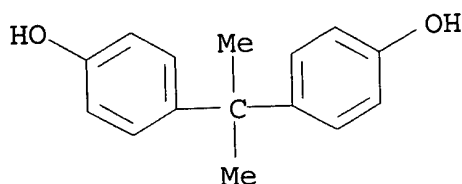
CRN 106-89-8  
CMF C3 H5 Cl O

CM 7

CRN 97-39-2  
CMF C15 H17 N3

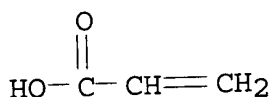
CM 8

CRN 80-05-7  
CMF C15 H16 O2



CM 9

CRN 79-10-7  
CMF C3 H4 O2



IC ICM C09J003-12  
ICS C09J003-16

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 39, 55

IT 122-60-1D, alkyl derivs., polymers with acrylic nitrile rubber and Epikote 828 and dicyandiamide 461-58-5D, Dicyandiamide, polymers with acrylic nitrile rubber and alkylphenol monoglycidyl ether and Epikote 828 25068-38-6D, Epikote 828, polymers with acrylic nitrile rubber and alkylphenol monoglycidyl ether and dicyandiamide 25265-19-4D, Acrylic acid-acrylonitrile-butadiene copolymer, polymers with alkylphenol monoglycidyl ether and Epikote 828 and dicyandiamide **120705-06-8**  
(adhesives, for oil-coated steel sheets)

L40 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
1987:516735 Document No. 107:116735 The structure and properties of networks prepared from tetraepoxide and carboxyl-terminated polybutadienes. Ilavsky, M.; Hrouz, J.; Dusek, K.; Nedbal, J.; Vanek, P. (Inst. Macromol. Chem., Czech. Acad. Sci., Prague, 162 06, Czech.). Crosslinked Epoxies, Proc. Discuss. Conf., 9th, Meeting Date 1986, 347-56. Editor(s): Sedlacek, Blahoslav; Kahovec, Jaroslav. de Gruyter: Berlin, Fed. Rep. Ger. (English) 1987.  
CODEN: 56BCAG.

AB Measurements of the thermally stimulated depolarization and of the dynamic mech. and photoelastic behavior showed that networks made from the reactions of carboxy-terminated butadiene rubber and tetraepoxy-contg. nitrile rubber in the presence of Cr octanoate were homogeneous, with the exception of samples having the highest content of the tetraepoxy resin. The position of the main transition of the networks depended on the microstructure of the rubbers and was little affected by the resin content. The min. in

the equil. modulus and in the sol content were obsd. for the stoichiometric ratio of reactive groups.

IT 110339-77-0D, reaction products with carboxy-terminated butadiene rubber

(network structure and properties of)

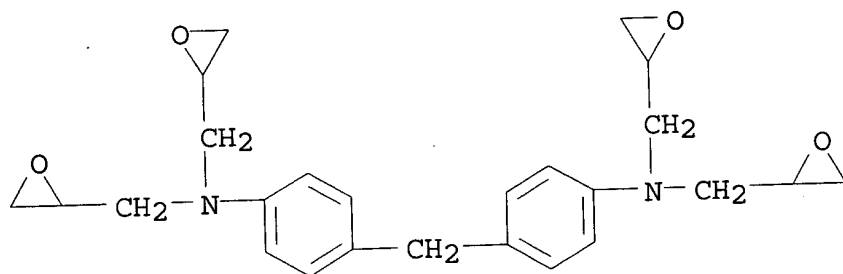
RN 110339-77-0 HCAPLUS

CN 2-Propenenitrile, polymer with 1,3-butadiene and N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3

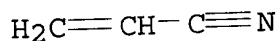
CMF C25 H30 N2 O4



CM 2

CRN 107-13-1

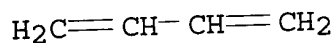
CMF C3 H3 N



CM 3

CRN 106-99-0

CMF C4 H6

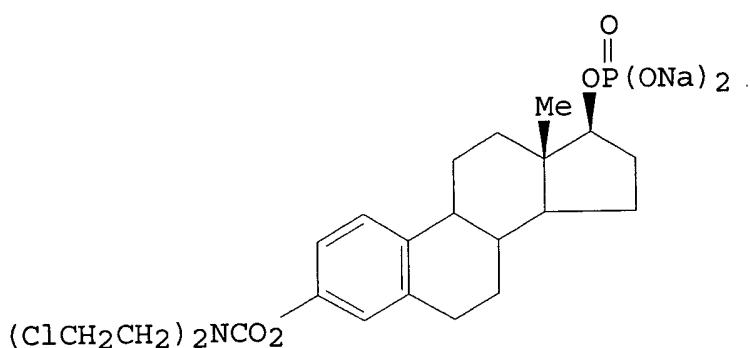


CC 39-12 (Synthetic Elastomers and Natural Rubber)  
Section cross-reference(s): 37

IT 110339-77-0D, reaction products with carboxy-terminated butadiene rubber  
(network structure and properties of)

L40 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
 1981:400896 Document No. 95:896 Studies on the distribution and  
 metabolism of estramustine phosphate disodium (EMP). Sugiyama,  
 Makoto; Tatewaki, Nobukiyo; Hayashi, Toshio; Sugihara, Katsuhiko  
 (Res. Lab., Nippon Shinyaku Co., Ltd., Kyoto, Japan). Iyakuin  
 Kenkyu, 11(4), 588-610 (Japanese) 1980. CODEN: IYKEDH. ISSN:  
 0287-0894.

GI



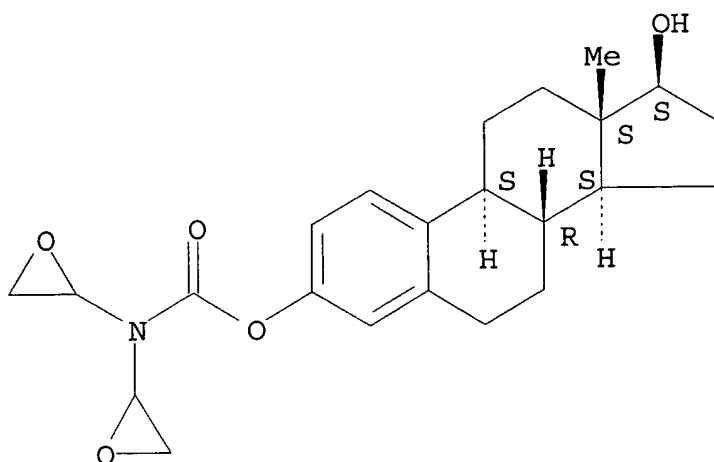
AB 3H-labeled or 14C-labeled estramustine phosphate disodium (I)  
 [52205-73-9] was administered intragastrically, or i.v. to rats or  
 dogs. The highest level of radioactivity was found in the liver,  
 followed by the prostate, adrenal gland, kidney, spleen, blood  
 plasma, testicle, and brain 24 h after treatment. A specific  
 binding of I to the prostate was found. I levels in the prostate  
 were 40-fold higher than those in blood plasma 48 h after treatment,  
 indicating a slow metab. of I in the prostate.

IT 77816-03-6 77816-04-7  
 (as estramustine metabolite)

RN 77816-03-6 HCAPLUS

CN Estra-1,3,5(10)-triene-3,17-diol (17.beta.)-, 3-  
 [bis(oxiranyl)carbamate] (9CI) (CA INDEX NAME)

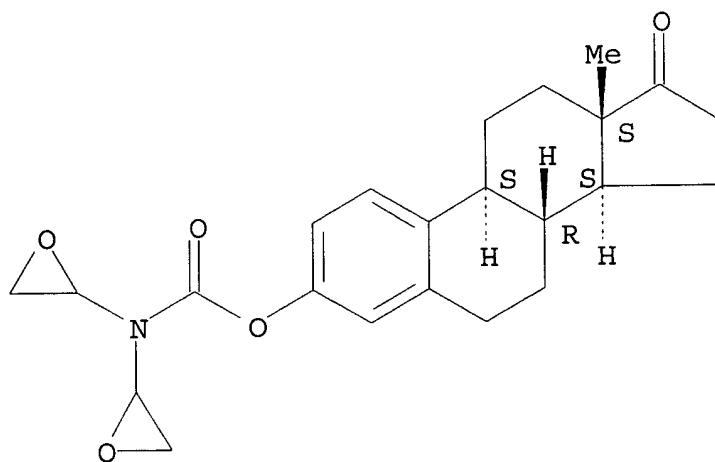
Absolute stereochemistry.



RN 77816-04-7 HCAPLUS

CN Estr-1,3,5(10)-trien-17-one, 3-[[[bis(oxiranyl)amino]carbonyl]oxy]-(9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 2-2 (Hormone Pharmacology)

IT 2998-57-4 62899-40-5 77816-03-6 77816-04-7  
(as estramustine metabolite)

L40 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2003 ACS

1972:15365 Document No. 76:15365 Crosslinked, water-containing epoxy polyadducts. Goebel, Wilhelm; Von Bonin, Wulf (Farbenfabriken Bayer A.-G.). Ger. DE 1495843 19710923, 7 pp. (German). CODEN: GWXXAW. APPLICATION: DE 1964-F44369 19641104.

AB Solidified water-in-oil emulsions of polyamine-crosslinked epoxy resins are prepd. with polyalkoxylated polyester emulsifiers. Thus,

to a soln. of emulsifier (reaction product of carboxyl-terminated adipic acid-diethylene glycol polyester [9010-89-3] 4308, polyethylene glycol [25322-68-3] 862, and bisphenol A epoxy resin 431 parts) 12 and N,N''-(oxyditetramethylene)diethylenediamine [4067-18-9] 15 in oxydiethylene p-(2,3-epoxypropoxy)benzoate [33147-06-7] 100 parts is added 100 parts H<sub>2</sub>O at 10.deg. to give a non-pourable paste which hardens to a light yellow solid contg. fine drops of emulsified H<sub>2</sub>O.

IT 35097-88-2P 35097-89-3P

(manuf. of, emulsifiers in)

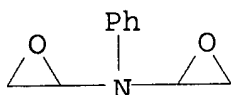
RN 35097-88-2 HCAPLUS

CN 3,6,9,12-Tetraazatetradecane-1,14-diamine, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] and N-oxiranyl-N-phenyloxiranamine (9CI) (CA INDEX NAME)

CM 1

CRN 46153-25-7

CMF C10 H11 N O2

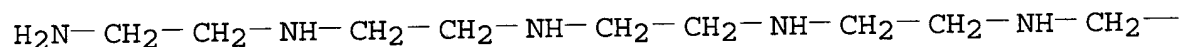


CM 2

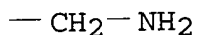
CRN 4067-16-7

CMF C10 H28 N6

PAGE 1-A



PAGE 1-B

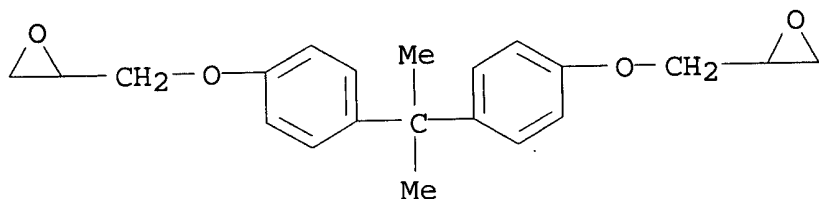


CM 3

CRN 1675-54-3

CMF C21 H24 O4





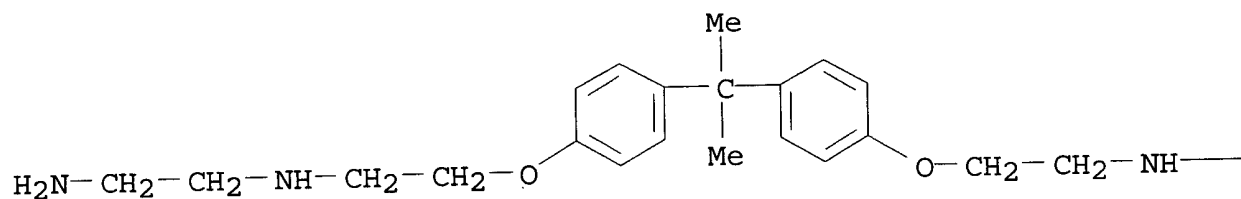
RN 35097-89-3 HCAPLUS  
 CN 1,2-Ethanediamine, N,N''-[(1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl)]bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] and N-oxiranyl-N-phenyloxiranamine (9CI) (CA INDEX NAME)

CM 1

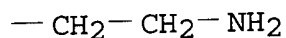
CRN 47612-95-3

CMF C23 H36 N4 O2

PAGE 1-A



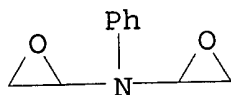
PAGE 1-B



CM 2

CRN 46153-25-7

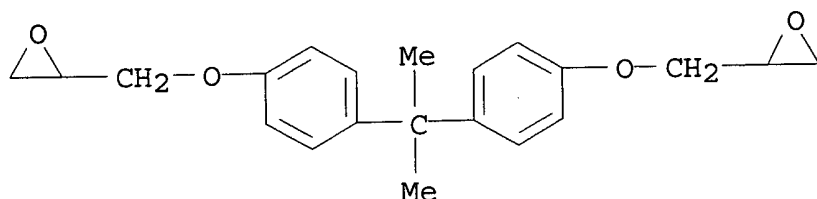
CMF C10 H11 N O2



CM 3

CRN 1675-54-3

CMF C21 H24 O4



IC C08G; C09D

CC 36 (Plastics Manufacture and Processing)

IT 35097-85-9P 35097-86-0P 35097-87-1P 35097-88-2P

35097-89-3P

(manuf. of, emulsifiers in)

L40 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2003 ACS

1965:52239 Document No. 62:52239 Original Reference No.

62:9283g-h,9284a-b Dyeing of cuprammonium fibers graft copolymerized with glycidyl methacrylate. Nakahara, Yasuji Sen-i Gakkaishi, 20(5), 319-23 (Japanese) 1964.

AB Dyeing of cuprammonium fibers (I) graft copolymerized with glycidyl methacrylate (II) was studied, esp. for the substantive dye Congo red and the basic dye magenta. These 2 dyes contain amino groups in their mols. which can react with the epoxide of II. Magenta stains I-II as fast as reactive dyeing, but Congo red stains the fiber slower than reactive dyeing without a pyridine catalyst in the dyebath. The adsorbed magenta on I-II cannot be extd. by normal org. solvents (.omicron.-chlorophenol, HCONMe<sub>2</sub>, etc.), while the Congo red adsorbed on I-II is extd. easily by these solvents. The dyeing properties of I-II for Congo red in the absence of catalyst are similar to those of normal substantive dyes; the higher the dyeing temp., the higher the dyeing velocity and the lower the max. exhaustion of dye. By addn. of pyridine as catalyst in the dyebath, the dyeing temp. affects only the dyeing rate, and the max. exhaustion of dye has the same value at each temp. in equil. Upon addn. of the catalyst, the rate of exhaustion of the dye Congo red by I-II apparently follows the 2nd-order reaction between the dye mols. and epoxides on the fiber. The activation energy of the reaction is large enough (.apprx.20 kcal.) to be considered a chem. reaction. Magenta absorbed on I-II has a different hue than that on wool, acrylic fiber, or cuprammonium fiber graft copolymerized with acrylonitrile (III), all dyed under the same conditions. A dye of this hue (like that of crystal violet) is synthesized by reaction of magenta and by reaction of magenta and II in EtOH at the b.p. with addn. of hydroquinone as an inhibitor for the polymerization reaction. This new dye has been named "Nobeoka Violet"; it has max.

absorption at 610 m.mu. in aq. soln. The dyed pieces of I-II with magenta and I-III with Nobeoka Violet are scarcely distinguishable from each other by the hue. It is assumed that Nobeoka Violet is synthesized on the fibers in dyeing of I -II by magenta. From Polymer Rept. 1964(74), 20-1.

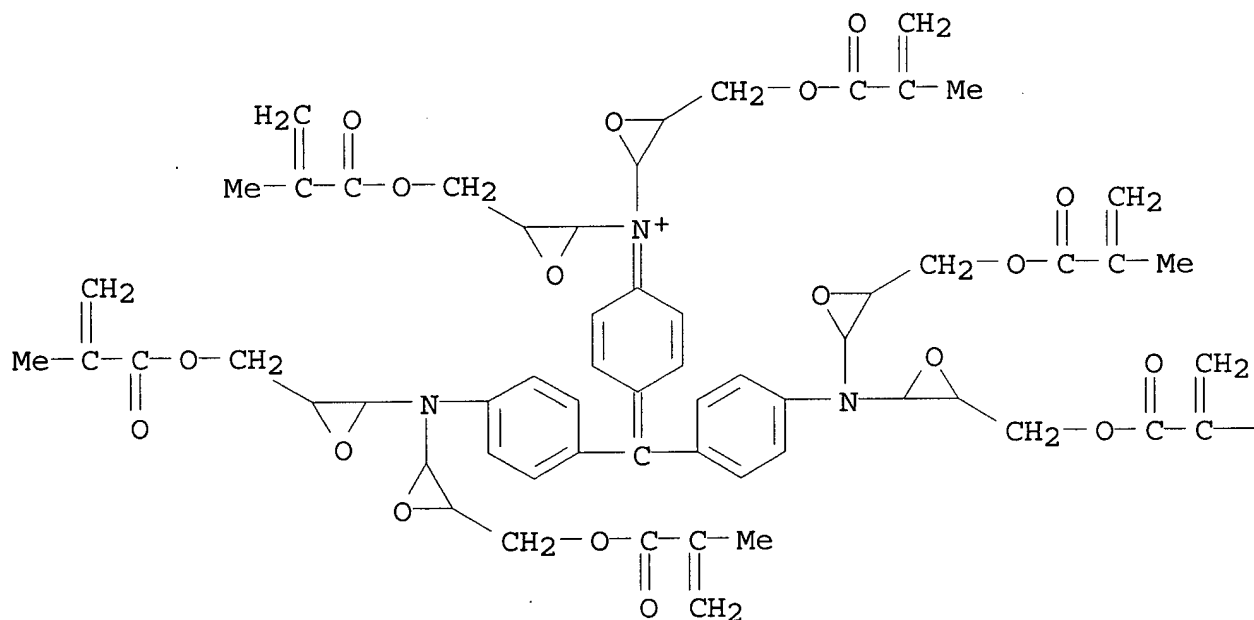
IT 10162-36-4, Nobeoka Violet

(dyeing cuprammonium rayon-glycidyl methacrylate graft fibers with)

RN 10162-36-4 HCAPLUS

CN Ammonium, [4-[4-[bis(1,2-epoxy-3-hydroxypropyl)amino]-.alpha.-[p-[bis(1,2-epoxy-3-hydroxypropyl)amino]phenyl]-3-methylbenzylidene]-2,5-cyclohexadien-1-ylidene]bis(1,2-epoxy-3-hydroxypropyl)-, chloride, hexamethacrylate (ester) (8CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

● Cl -

— Me

CC 47 (Textiles)  
IT 10162-36-4, Nobeoka Violet  
(dyeing cuprammonium rayon-glycidyl methacrylate graft fibers with)

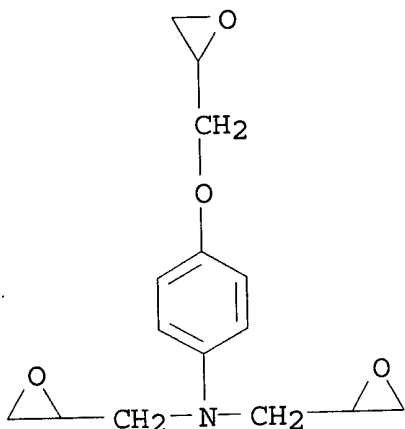
=> d 141 1-30 cbib abs hitstr hitind

L41 ANSWER 1 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2003:114121 Document No. 138:154871 Coupled **diene** polymers  
modified with electrophilic groups. Gruen, Michael; Knauf, Thomas;  
Braubach, Wilfried (Bayer Aktiengesellschaft, Germany). Eur. Pat.  
Appl. EP 1283220 A1 20030212, 13 pp. DESIGNATED STATES: R: AT, BE,  
CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT,  
LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (German). CODEN:  
EPXXDW. APPLICATION: EP 2002-16300 20020724. PRIORITY: DE  
2001-10139304 20010806; DE 2002-10217800 20020422.

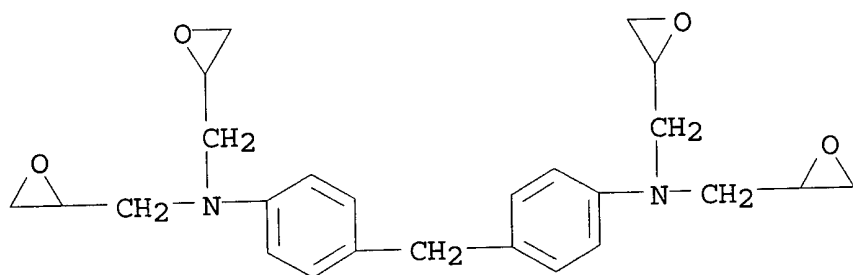
AB The title polymers, highly branched (star-formed) and with good  
processability, are prep'd. by coupling living polymers of  
**dienes**, optionally with vinylarom. compds., and introducing  
electrophilic groups; and have polydispersity 1.0-2.1, wt.-av. mol.  
wt. (Mw) .gtoreq.50,000, glass temp. (Tg) -100.degree. to  
-10.degree., and vinyl microstructure 5-90%. Polymg. 1125 g  
**butadiene** with 375 g styrene in hexane in the presence of  
tert-BuOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>3</sub> 90, K tert-amylate 0.80, and BuLi 12 mmol at  
70.degree. to complete conversion, adding 0.253 mol  
4,4'-methylenebis(N,N-diglycidylaniline)/mol polymer, stirring at  
70.degree. for .apprx.1 h, and stopping with EtOH gave a star  
polymer with microstructure 1,4-cis 13.0, 1,4-trans 17.7, and vinyl  
46.6%, styrene content 76%, Tg -22.degree., polydispersity 2.1, and  
Mw 495,935.

IT 5026-74-4, N,N-Diglycidyl-4-(glycidyoxy)aniline  
28768-32-3, 4,4'-Methylenebis(N,N-diglycidylaniline)  
(coupling/branching agents for living **diene** polymers)

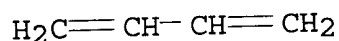
RN 5026-74-4 HCAPLUS  
 CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)-  
 (9CI) (CA INDEX NAME)



RN 28768-32-3 HCAPLUS  
 CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-  
 (oxiranylmethyl)- (9CI) (CA INDEX NAME)



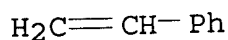
IT 9003-55-8P  
 (of star configuration; coupled **diene** polymers modified  
 with electrophilic groups)  
 RN 9003-55-8 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 106-99-0  
 CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



- (styrene-**butadiene** rubber, of star configuration; coupled **diene** polymers modified with electrophilic groups)
- IC ICM C08C019-44
- CC 39-4 (Synthetic Elastomers and Natural Rubber)
- ST coupling **diene** polymer branched; **butadiene** copolymer branched coupling; styrene copolymer branched coupling; glycidylaniline deriv branching agent **diene** polymer; living polymn **diene** polymer coupling; SBR coupled branched manuf
- IT Polymerization  
(anionic, living; prepn. of coupled **diene** polymers by anionic living polymn.)
- IT **Tires**  
(coupled **diene** polymers modified with electrophilic groups for use in **tires**)
- IT Styrene-**butadiene** rubber, preparation  
(of star configuration; coupled **diene** polymers modified with electrophilic groups)
- IT Linking agents  
(polyglycidyl compds.; coupling/branching agents for living **diene** polymers)
- IT **Alkadienes**  
(polymers, of star configuration; coupled **diene** polymers modified with electrophilic groups)
- IT Aromatic compounds  
Vinyl compounds, preparation  
(vinyl arenes, copolymers with **dienes**, of star configuration; coupled **diene** polymers modified with electrophilic groups)
- IT 2451-62-9 3454-29-3, Trimethylolpropane triglycidyl ether  
5026-74-4, N,N-Diglycidyl-4-(glycidyoxy)aniline  
13236-02-7, Glycerol triglycidyl ether 28768-32-3,  
4,4'-Methylenebis(N,N-diglycidylaniline) 36366-26-4,  
Trimethylolethane triglycidyl ether  
(coupling/branching agents for living **diene** polymers)
- IT 9003-55-8P  
(of star configuration; coupled **diene** polymers modified with electrophilic groups)
- IT 9003-55-8P  
(styrene-**butadiene** rubber, of star configuration; coupled **diene** polymers modified with electrophilic groups)

groups)

L41 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2003 ACS

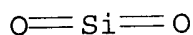
2002:944779 Document No. 138:25691 Manufacture of **silica**  
 -compounded **rubber** compositions with good processability.  
 Yamada, Haruo; Saito, Akira; Ishimura, Tokufusa (Asahi Kasei  
 Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002356583 A2  
 20021213, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
 2001-372471 20011206. PRIORITY: JP 2001-87503 20010326.

AB Title compns., consisting of 100 parts **diene**  
**rubbers** compatible to reinforcing **SiO<sub>2</sub>**, 25-150  
 parts reinforcing **SiO<sub>2</sub>** fillers, 0.1-15 parts silane  
 couplers, 1.0-20 parts **vulcanizing** agents and  
 accelerators, are prepd. by (A) kneading 70-100% of total  
**diene rubbers** with 50-100% of total **SiO<sub>2</sub>**  
 and 0-10% (based on the **SiO<sub>2</sub>** content in this step) silane  
 couplers at discharge temp. 120-180.degree. for .gtoreq.1 time and  
 cooling, (B) kneading the compns. from step A with the rest of  
**diene rubbers**, **SiO<sub>2</sub>**, and silane couplers  
 at discharge temp. 120-180.degree. for .gtoreq.1 times and cooling,  
 (C) kneading the compns. from step B with all the  
**vulcanizers** at discharge temp. .ltoreq.120.degree. and  
 cooling, and (D) **vulcanizing** at 130-200.degree.. Kneading  
 137.5 parts oil-extended tetraglycidyl-1,3-bisaminomethylcyclohexane-  
 modified SBR (contg. 37.5 parts extending oil) with 70 parts  
**SiO<sub>2</sub>** at 160.degree. to form a mixt. (M1), kneading the M1  
 with 7 parts Si 69 and other additives at 160.degree. to form a  
 mixt. (M2), kneading the M2 with S and **vulcanizers** at  
 90.degree., and **vulcanizing** at 160.degree. to form a test  
 piece with tensile strength 21.2 MPa, 50.degree. tan.delta. (for  
 fuel cost) 0.134, and 0.degree. tan (for wet-skid resistance) 0.805.

IT 7631-86-9, **Silica**, uses  
 (multistep kneading for **SiO<sub>2</sub>**-contg. **diene**  
**rubber** compns. for **tire** treads with high mech.  
 strength ad wet-skid resistance and low fuel cost)

RN 7631-86-9 HCAPLUS

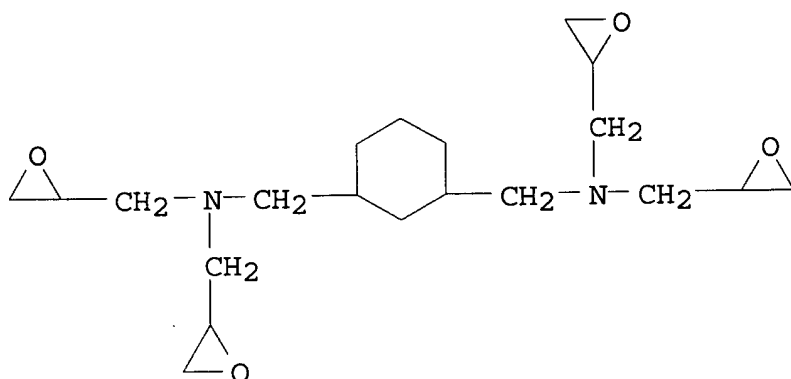
CN **Silica** (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 65992-66-7  
 (reaction products with SBR; multistep kneading for **SiO<sub>2</sub>**  
 -contg. **diene rubber** compns. for **tire**  
 treads with high mech. strength ad wet-skid resistance and low  
 fuel cost)

RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
 (9CI) (CA INDEX NAME)



IT 9003-55-8P

(styrene-butadiene rubber, modified for compatibility to SiO<sub>2</sub>; multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)

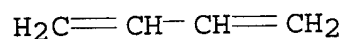
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

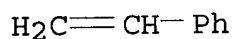
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



IC ICM C08L009-00

ICS B29B007-14; B29B007-90; B60C001-00; C08J003-24; C08K003-36; C08K005-00; B29K009-00; B29K105-16

CC 39-13 (Synthetic Elastomers and Natural Rubber)

ST tire tread diene rubber silica

reinforcer multistep kneading process; mech strength tire

diene rubber silica multistep kneading;

wet skid resistance tire diene rubber

silica multistep kneading; fuel cost redn tire

diene rubber silica multistep kneading



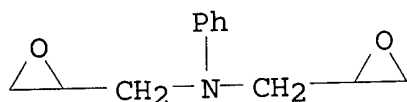
- IT Styrene-butadiene rubber, preparation  
(modified for compatibility to SiO<sub>2</sub>; multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)
- IT Kneading  
(multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)
- IT Tires  
(treads; multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)
- IT 7631-86-9, Silica, uses  
(multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)
- IT 2530-83-8, 3-Glycidoxypopyltrimethoxysilane 4814-91-9,  
1,2-Dimethylimidazoline 65992-66-7  
(reaction products with SBR; multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)
- IT 9003-55-8P  
(styrene-butadiene rubber, modified for compatibility to SiO<sub>2</sub>; multistep kneading for SiO<sub>2</sub>-contg. diene rubber compns. for tire treads with high mech. strength ad wet-skid resistance and low fuel cost)

L41 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:889211 Document No. 137:371260 Silica-reinforced rubber compositions of improved processability and storage stability. Schaal, Stephane; Coran, Aubert Y.; Mowdood, Syed K. (Pirelli Pneumatici S.p.A., Italy). U.S. US 6482884 B1 20021119, 20 pp., Cont.-in-part of U.S. Ser. No. 514,641, abandoned. (English). CODEN: USXXAM. APPLICATION: US 2000-571503 20000515. PRIORITY: US 2000-514641 20000229.

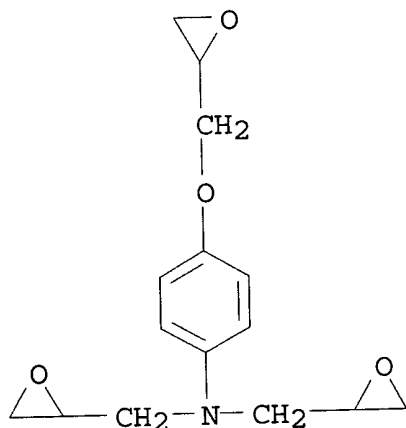
AB The disclosure relates to a process for improving the processability, storage stability and/or cure rate of an uncured silica-reinforced rubber compn. where silica comprises the major filler in the reinforced rubber compn., which comprises combining a mixt. comprising rubber, silica and at least one org. compd. having a low mol. wt. and a functional group wherein said functional group is at least an epoxy group, such as an epoxy/ether, epoxy/hydroxyl, epoxy/ester, epoxy/amine, ether/amine, episulfide/ether, episulfide/hydroxyl, episulfide/ester functional group located in a terminal or sterically unhindered position in the mol. of said org. compd. where the mol. wt. of said org. compd. having a low mol. wt. is less than 7,000, or the org. compd. comprises an abietyl,

styrenated resorcinol formaldehyde, or ester hydroxyl org. compd. having a hydroxyl, ester, and optionally, an ether group, such as an ester diol. Thus, a compn. (A) contg. SBR 100, **silica** 60, X 50S (bis[3-(triethoxysilyl)propyl] tetrasulfide) 9.6, stearic acid 3, ZnO 2, 6PPD (N-1,3-dimethylbutyl-N'-p-phenylenediamine) 1.5, wax 1, arom. oil 12, N,N-diglycidylaniline (I) 2, S 1.2, N-cyclohexyl-2-benzothiazolesulfenamide 1.8 and DPG 80 (diphenylguanidine) 1.25 parts showed a substantial decrease in curing time compared to a control compn. lacking the I. The Mooney peak and the processability index of A are much lower than that of control compn. This indicates that the addn. of I to the control compn. leads to a significant improvement of the resistance to adverse rheol. changes that occur during storage. It can also be seen that I is much more effective than low mol. wt. glycols such as diethylene glycol di-Et ether or diethylene glycol Et ether acetate for processability after storage.

IT 2095-06-9, N,N-Diglycidylaniline 5026-74-4,  
N,N-Diglycidyl-4-glycidyoxyaniline  
(additives for **silica** reinforced **rubber**  
compns. of improved processability and storage stability)  
RN 2095-06-9 HCAPLUS  
CN Oxiranemethanamine, N-(oxiranylmethyl)-N-phenyl- (9CI) (CA INDEX  
NAME)



RN 5026-74-4 HCAPLUS  
CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)

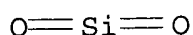


IT 7631-86-9, **Silica**, uses

(reinforcement filler; additives for **silica** reinforced **rubber** compns. of improved processability and storage stability)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9003-55-8

(styrene-butadiene rubber, additives for **silica** reinforced **rubber** compns. of improved processability and storage stability)

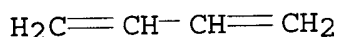
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

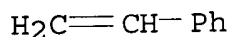
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



IC ICM C08K003-36

ICS C08K009-06

NCL 524492000

CC 39-9 (Synthetic Elastomers and Natural Rubber)

ST epoxy diglycidylaniline storage stability improver **silica** reinforced **rubber** compn

IT Stabilizing agents

**Vulcanization** accelerators and agents

(additives for **silica** reinforced **rubber** compns. of improved processability and storage stability)

IT Styrene-butadiene rubber, properties

(additives for **silica** reinforced **rubber** compns. of improved processability and storage stability)

IT Fatty acids, uses

(dimer acids, diglycidyl ester; additives for **silica** reinforced **rubber** compns. of improved processability)

- and storage stability)
- IT Natural **rubber**, uses  
Soybean oil  
(epoxidized; additives for **silica** reinforced  
**rubber** compns. of improved processability and storage  
stability)
- IT 111-46-6, Diethylene glycol, uses 1446-61-3, Dehydroabietylamine  
2095-06-9, N,N-Diglycidylaniline 2211-94-1, Glycidyl  
4-methoxyphenyl ether 2386-87-0, 3,4-Epoxy cyclohexylmethyl  
3,4-epoxycyclohexanecarboxylate 2425-79-8, 1,4-Butanediol  
diglycidyl ether 2461-15-6, 2-Ethylhexyl glycidyl ether  
2461-40-7, Glycidyl butyrate 3146-39-2, exo-2,3-Epoxy norbornane  
4016-14-2, Isopropyl glycidyl ether 4436-24-2,  
(2,3-Epoxypropyl)benzene 5026-74-4, N,N-Diglycidyl-4-  
glycidyl oxyaniline 5455-98-1, N-(2,3-Epoxypropyl)phthalimide  
5493-45-8, Diglycidyl 1,2-cyclohexane dicarboxylate 25068-38-6D,  
Bisphenol A-epichlorohydrin copolymer, glycidyl-end-capped  
26142-30-3, Polypropylene glycol diglycidyl ether 26447-14-3,  
Cresyl glycidyl ether 26761-45-5, Glycidyl neodecanoate  
37231-63-3, Polyrad 0515A 85721-25-1, 1,2-Epoxy-9-decene  
97052-23-8, Formaldehyde-glycidyl phenyl ether copolymer  
175205-96-6, Exx-RD 85 359013-45-9, Penacolite CRL 411  
(additives for **silica** reinforced **rubber**  
compns. of improved processability and storage stability)
- IT 7631-86-9, **Silica**, uses  
(reinforcement filler; additives for **silica** reinforced  
**rubber** compns. of improved processability and storage  
stability)
- IT 9003-55-8  
(styrene-butadiene **rubber**, additives for  
**silica** reinforced **rubber** compns. of improved  
processability and storage stability)
- L41 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:747860 Document No. 137:264253 Modified conjugated **diene**  
polymer compositions for **tire** treads. Yamada, Haruo;  
Saito, Akira; Kubo, Nobuaki (Asahi Kasei Corporation, Japan). Jpn.  
Kokai Tokkyo Koho JP 2002284934 A2 20021003, 12 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2001-87224 20010326.
- AB Title compns., with good processability, contain (A) 100 parts  
modified conjugated **diene** (CD) **rubber** or  
CD-styrene **rubber** polymers having wt.-av. mol. wt. (Mw) of  
100,000-2,000,000 and polydispersity (Mw/Mn) of 1.05-3.0 and contg.  
.gtoreq.60% modified components (MD) by reacting with .gtoreq.2  
epoxy group-contg. polyfunctional compds. at epoxy group/living  
**rubber** polymer of >1 equiv and .ltoreq.10 equiv, (B) 25-100  
parts **SiO<sub>2</sub>**, and (C) 1.0-20 parts **vulcanizers**. A  
kneaded compn. contg. tetraglycidyl-1,3-bis(aminomethylcyclohexane)-  
modified SBR (contg. 35% styrene, with MD 83%, Mw 446,000, Mw/Mn  
1.55) 100, carbon black 5, and **SiO<sub>2</sub>** 65 part showed  
130.degree. Mooney viscosity of 41 and was mixed with 1.4 parts S  
and 3.7 parts **vulcanization** accelerators and pressed to

form a test piece with 300% modulus 9.8 MPa, 50.degree. tan.delta. 0.121 (for low fuel cost), and 0.degree. tan.delta. (for wet-skid resistance) 0.925.

IT 9003-17-2P  
(butadiene rubber, epoxy-terminated;  
tetraglycidyl bisaminomethylcyclohexane-modified diene  
rubber or SBR for tire treads with low fuel  
cost and high grip ability)

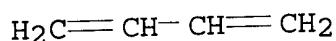
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6



IT 9003-55-8P  
(styrene-butadiene rubber, epoxidized;  
tetraglycidyl bisaminomethylcyclohexane-modified diene  
rubber or SBR for tire treads with low fuel  
cost and high grip ability)

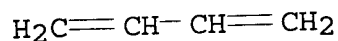
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

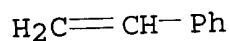
CMF C4 H6



CM 2

CRN 100-42-5

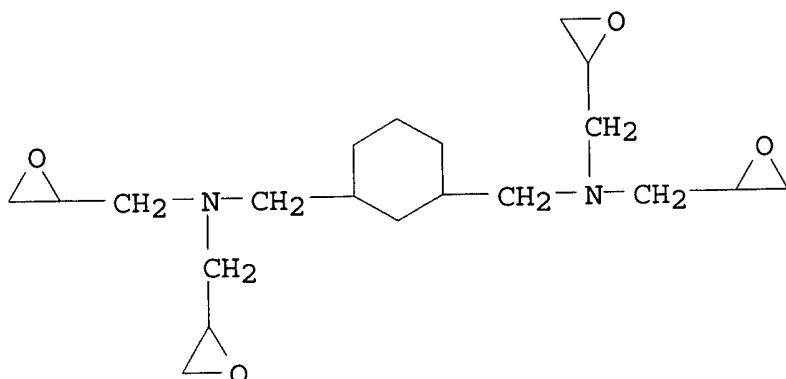
CMF C8 H8



IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane)  
(tetraglycidyl bisaminomethylcyclohexane-modified diene  
rubber or SBR for tire treads with low fuel  
cost and high grip ability)

RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl) -  
(9CI) (CA INDEX NAME)



- IC ICM C08L015-00  
ICS C08G059-14; C08G059-28; C08K003-04; C08K003-36; C08K005-541
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST tetraglycidyl bisaminomethylcyclohexane modified **diene rubber tire** tread; SBR tetraglycidyl bisaminomethylcyclohexane modified **tire** tread
- IT Styrene-**butadiene rubber**, preparation  
(epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)
- IT **Butadiene rubber**, preparation  
(epoxy-terminated; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)
- IT **Tires**  
(treads; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)
- IT 9003-17-2P  
(**butadiene rubber**, epoxy-terminated; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)
- IT 9003-55-8P  
(styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)
- IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane)  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR for **tire** treads with low fuel cost and high grip ability)

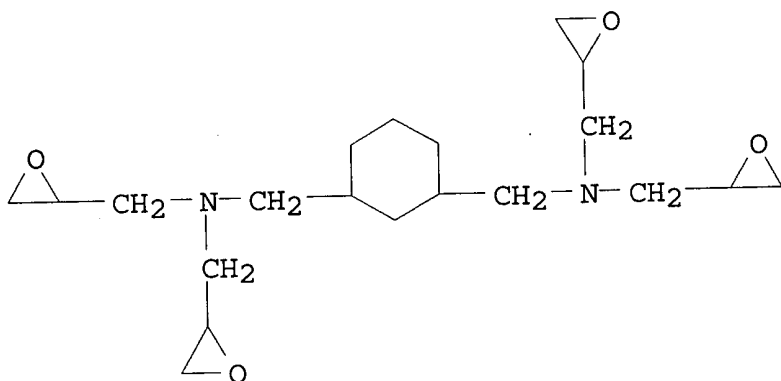
2002:747859 Document No. 137:264252 Modified conjugated **diene** polymer compositions and **rubber** compositions for **tire** treads. Yamada, Haruo; Saito, Akira; Kubo, Nobuaki; Matsuda, Takaaki (Asahi Kasei Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002284933 A2 20021003, 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-87223 20010326.

AB Title polymer compns., having a wt.-av. mol. wt. (Mw) of 100,000-2,000,000, consist of (A1) epoxy-modified conjugated **diene** (CD) polymers prepd. by polymg. CD or CD and arom. vinyl compds. in the presence of org. Li compds. in hydrocarbon solvents, then reacting with .gtoreq.2 epoxy group-contg. functional compds. and (A2) modified polymers prepd. from living A1 polymers and reactive functional group-contg. modifiers. A kneaded compn. contg. tetraglycidyl-1,3-bis(aminomethylcyclohexane)-modified SBR (35% styrene, with Mw 683,000) 70, dimethylimidazoline-modified SBR (35% styrene, with Mw 563,000) 330, carbon black 5, SiO<sub>2</sub> 65, Si 69 3, and S 1.4 part was **vulcanized** to form a test piece with tensile strength 21.3 MPa, 50.degree. tan.delta. 0.135 (for low fuel cost), and 0.degree. tan.delta. (for wet-skid resistance) 0.93.

IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane) (epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)

RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl) - (9CI) (CA INDEX NAME)



IT 9003-55-8P

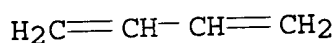
(styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** blend **tire** treads with low fuel cost and high grip ability)

RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

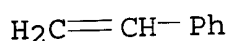
CM 1

CRN 106-99-0  
CMF C4 H6



CM 2

CRN 100-42-5  
CMF C8 H8



- IC ICM C08L015-00  
ICS C08F008-08; C08F008-30; C08F008-42; C08K003-36; C08K005-00;  
C08L091-00
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST tetraglycidyl bisaminomethylcyclohexane modified **diene rubber blend tire tread**; SBR tetraglycidyl bisaminomethylcyclohexane modified blend **tire tread**
- IT Silanes  
(alkoxy, **diene rubber** modified with;  
epoxidized **diene rubber** and other functional  
compd.-modified **diene rubber** blend for  
**tire treads**)
- IT Amines, reactions  
(amino aldehydes, (thio), **diene rubber**  
modified with; epoxidized **diene rubber** and  
other functional compd.-modified **diene rubber**  
blend for **tire treads**)
- IT Aldehydes, reactions  
Ketones, reactions  
(amino, (thio), **diene rubber** modified with;  
epoxidized **diene rubber** and other functional  
compd.-modified **diene rubber** blend for  
**tire treads**)
- IT Polysiloxanes, reactions  
(di-Me, ethoxy- or methoxy-contg., **diene rubber**  
modified with; epoxidized **diene rubber** and  
other functional compd.-modified **diene rubber**  
blend for **tire treads**)
- IT Synthetic **rubber**, preparation  
(**diene**, epoxy-terminated; epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire treads**)
- IT Styrene-**butadiene rubber**, preparation  
(epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified



- diene rubber blend tire** treads with low fuel cost and high grip ability)
- IT Amines, reactions  
(keto, (thio), **diene rubber** modified with; epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)
- IT Heterocyclic compounds  
(nitrogen, **diene rubber** modified with; epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)
- IT Polymer blends  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** blend **tire** treads with low fuel cost and high grip ability)
- IT **Tires**  
(treads; epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)
- IT 90-93-7, 4,4'-Bis(diethylamino)benzophenone 101-68-8,  
4,4'-Diphenylmethanediisocyanate 681-84-5, Tetramethoxysilane  
2530-83-8, 3-Glycidoxypropyltrimethoxysilane 7646-78-8, Tin  
tetrachloride, reactions 28299-33-4D, Imidazoline, di-Me derivs.  
(**diene rubber** modified with; epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)
- IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane)  
(epoxidized **diene rubber** and other functional compd.-modified **diene rubber** blend for **tire** treads)
- IT 9003-55-8P  
(styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** blend **tire** treads with low fuel cost and high grip ability)

L41 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2003 ACS

2002:747858 Document No. 137:264260 **Rubber** compositions for vibration dampers. Matsuda, Takaaki; Yamada, Haruo (Asahi Kasei Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002284932 A2 20021003, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-86880 20010326.

AB Title compns., with good sound insulation and heat resistance, contain (A) 100 parts **rubber** blends consisting of 20-80% natural and/or polyisoprene (contg. .gtoreq.90% of cis-configuration units) **rubber** and 20-80% conjugated **diene** (CD) **rubber** and/or CD-styrene **rubber** polymers having wt.-av. mol. wt. (Mw) of 100,000-2,000,000 and polydispersity (Mw/Mn) of 1.05-3.0 and contg. .gtoreq.60% modified components (MD) prepd. by reacting with .gtoreq.2 epoxy group-contg. polyfunctional

comps, (B) 25-100 parts **SiO<sub>2</sub>** and/or carbon black, and (C) 0.5-3.0 parts **vulcanizers**. A compn. contg. tetraglycidyl-1,3-bis(aminomethylcyclohexane)-modified SBR (contg. 12% styrene, with MD 70%, Mw 538,000, Mw/Mn 2.33) 30, RSS 1 70, **SiO<sub>2</sub>** 40, and S 1.4 part was **vulcanized** to form a test piece with 300% modulus 51 kg/cm<sup>2</sup>, tan.delta. at 15 Hz 0.095, dynamic multiple factor 1.53, compression set 28 (100.degree., 70 h), and good heat aging resistance (120.degree., 100 h).

IT 9003-55-8P

(styrene-butadiene rubber, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR and natural (isoprene) **rubber** blends for vibration dampers)

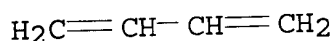
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

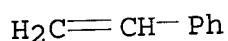
CMF C4 H6



CM 2

CRN 100-42-5

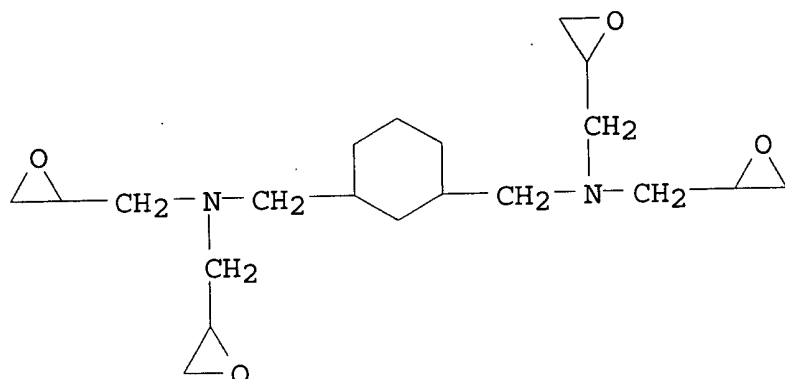
CMF C8 H8



IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane) (tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR and natural (isoprene) **rubber** blends for vibration dampers)

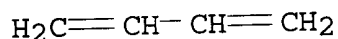
RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)- (9CI) (CA INDEX NAME)



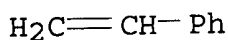
- IC ICM C08L015-00  
ICS C08G081-02; C08K003-04; C08K003-36; C08L007-00; C08L009-00;  
C08L009-06
- CC 39-15 (Synthetic Elastomers and Natural Rubber)
- ST tetraglycidyl bisaminomethylcyclohexane modified SBR natural  
**rubber** blend vibration damper
- IT Natural **rubber**, uses  
(RSS 1; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber** or SBR and natural (isoprene)  
**rubber** blends for vibration dampers)
- IT Synthetic **rubber**, preparation  
(**diene**, epoxy-terminated; tetraglycidyl  
bisaminomethylcyclohexane-modified **diene rubber**  
or SBR and natural (isoprene) **rubber** blends for  
vibration dampers)
- IT Styrene-**butadiene rubber**, preparation  
(epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber** or SBR and natural (isoprene)  
**rubber** blends for vibration dampers)
- IT Isoprene **rubber**, uses  
(of cis-1,4-configuration; tetraglycidyl  
bisaminomethylcyclohexane-modified **diene rubber**  
or SBR and natural (isoprene) **rubber** blends for  
vibration dampers)
- IT Heat-resistant materials  
Sound insulators  
Vibration dampers  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber** or SBR and natural (isoprene) **rubber**  
blends for vibration dampers)
- IT Polymer blends  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber** or SBR and natural (isoprene) **rubber**  
blends for vibration dampers)
- IT 9003-31-0  
(isoprene **rubber**, of cis-1,4-configuration;  
tetraglycidyl bisaminomethylcyclohexane-modified **diene**

- rubber** or SBR and natural (isoprene) **rubber** blends for vibration dampers)
- IT 9003-55-8P (styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR and natural (isoprene) **rubber** blends for vibration dampers)
- IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane) (tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** or SBR and natural (isoprene) **rubber** blends for vibration dampers)
- L41 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:747857 Document No. 137:264259 Modified **diene rubber** compositions for footwears. Matsuda, Takaaki; Yamada, Haruo (Asahi Kasei Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002284931 A2 20021003, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-86879 20010326.
- AB Title compns., with abrasion and wet-skid resistance, contain 5-150 parts fillers and 100 parts conjugated **diene** (CD) **rubber** and/or CD-styrene **rubber** polymers having wt.-av. mol. wt. (Mw) of 100,000-2,000,000 and polydispersity (Mw/Mn) of 1.05-3.0 and contg. .gtoreq.60% modified components (MD) prepd. by reacting with .gtoreq.2 epoxy group-contg. polyfunctional compds. A compn. contg. tetraglycidyl-1,3-bis(aminomethylcyclohexane)-modified SBR (contg. 35% styrene, with MD 70%, Mw 538,000, Mw/Mn 2.33) 100, SiO<sub>2</sub> 60, and S 1.4 part was **vulcanized** to form a test piece with 300% modulus 12.1 MPa, tensile strength 21.8 MPa, 0.degree. tan.delta. (for wet-skid resistance) 0.894, and abrasion resistance index 111%.
- IT 9003-55-8P (styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** compns. with high wear and wet-skid resistance for shoe outsoles)
- RN 9003-55-8 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)
- CM 1
- CRN 106-99-0  
CMF C4 H6

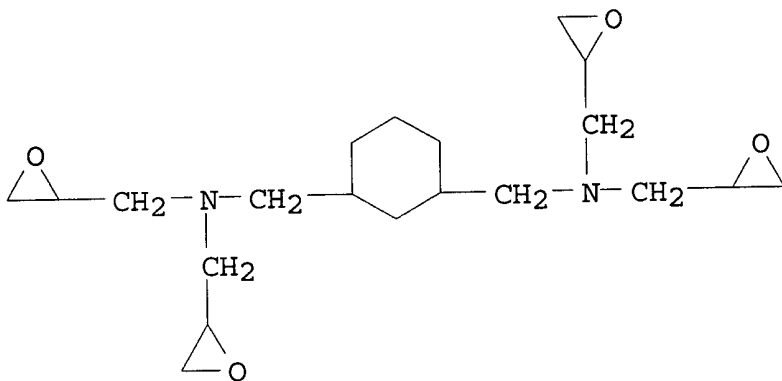


CM 2

CRN 100-42-5  
CMF C8 H8

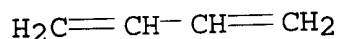


- IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane)  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber** compns. with high wear and wet-skid resistance for  
shoe outsoles)
- RN 65992-66-7 HCAPLUS
- CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)



- IC ICM C08L015-00  
ICS C08F008-00; C08K003-00; A43B013-04
- CC 39-15 (Synthetic Elastomers and Natural Rubber)
- ST tetraglycidyl bisaminomethylcyclohexane modified **diene**  
**rubber** footwear; shoe outsole tetraglycidyl  
bisaminomethylcyclohexane modified SBR
- IT Synthetic **rubber**, preparation  
(**diene**, epoxy-terminated; tetraglycidyl  
bisaminomethylcyclohexane-modified **diene rubber**  
compns. with high wear and wet-skid resistance for shoe outsoles)
- IT Styrene-**butadiene rubber**, preparation  
(epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber** compns. with high wear and  
wet-skid resistance for shoe outsoles)
- IT Shoes  
(outsoles; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber** compns. with high wear and  
wet-skid resistance for shoe outsoles)
- IT Abrasion-resistant materials  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber** compns. with high wear and wet-skid resistance for  
shoe outsoles)
- IT 9003-55-8P  
(styrene-**butadiene rubber**, epoxidized;

- tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** compns. with high wear and wet-skid resistance for shoe outsoles)
- IT 65992-66-7, Tetra-N-glycidyl-1,3-bis(aminomethylcyclohexane) (tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** compns. with high wear and wet-skid resistance for shoe outsoles)
- L41 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:747856 Document No. 137:264251 Modified conjugated **diene** polymer compositions for **tire** treads. Yamada, Haruo; Saito, Akira; Matsuda, Takaaki (Asahi Kasei Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002284930 A2 20021003, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-84589 20010323.
- AB Title compns. contain mixts. of (A1) modified conjugated **diene** (CD) polymers having wt.-av. mol. wt. (Mw) of 100,000-2,000,000 and polydispersity (Mw/Mn) of 1.05-3.0 and prepd. by polyng. CD in the presence of org. Li compds. in hydrocarbon solvents, then reacting with .gtoreq.2 epoxy group-contg. polyfunctional compds. to form polymers contg. .gtoreq.60% modified degree (MD) and (A2) modified arom. vinyl compd. (AV)-CD copolymers having Mw and Mw/Mn as described in A1 and prepd. as described in A1 with AV and CD as monomers. A compn. contg. tetraglycidyl-1,3-bis(aminomethylcyclohexane) (I)-modified **butadiene rubber** (with MD 83%, Mw 390,000, Mw/Mn 1.26) 20, I-modified SBR (35% styrene, with MD 78%, Mw 713,000, Mw/Mn 1.95) 80, carbon black 5, SiO<sub>2</sub> 65, Si 69 6, and S 1.4 part was **vulcanized** to form a test piece with 300% modulus 11.0 MPa, tensile strength 21.0 MPa, 50.degree. tan.delta. 0.140 (for low fuel cost), and 0.degree. tan.delta. (for wet-skid resistance) 0.355.
- IT 9003-17-2P  
(**butadiene rubber**, epoxy-terminated; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** blend **tire** treads with low fuel cost and high grip ability)
- RN 9003-17-2 HCAPLUS  
CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 106-99-0  
CMF C4 H6

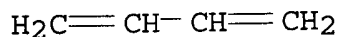


- IT 9003-55-8P  
(styrene-**butadiene rubber**, epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified **diene rubber** blend **tire** treads with low fuel cost and high grip ability)

RN 9003-55-8 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

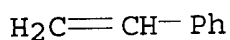
CM 1

CRN 106-99-0  
 CMF C4 H6



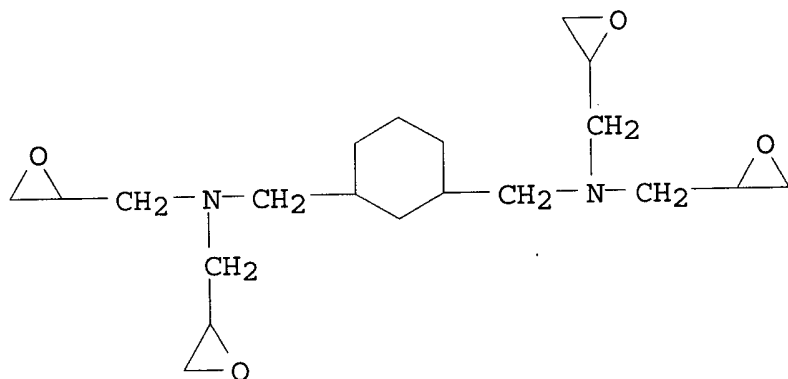
CM 2

CRN 100-42-5  
 CMF C8 H8



IT 65992-66-7  
 (tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber** blend **tire** treads with low fuel cost and  
 high grip ability)

RN 65992-66-7 HCAPLUS  
 CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
 (9CI) (CA INDEX NAME)



IC ICM C08L009-06  
 ICS B60C001-00; C08F004-48; C08F008-08; C08G081-00; C08K003-36;  
 C08K005-00; C08L063-08; C08L009-06; C08L091-00  
 CC 39-13 (Synthetic Elastomers and Natural Rubber)  
 ST tetraglycidyl bisaminomethylcyclohexane modified **diene**  
**rubber** blend **tire** tread; SBR tetraglycidyl  
 bisaminomethylcyclohexane modified blend **tire** tread

- IT Styrene-**butadiene rubber**, preparation  
(epoxidized; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber blend tire** treads with  
low fuel cost and high grip ability)
- IT **Butadiene rubber**, preparation  
(epoxy-terminated; tetraglycidyl bisaminomethylcyclohexane-  
modified **diene rubber blend tire**  
treads with low fuel cost and high grip ability)
- IT Polymer blends  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber blend tire** treads with low fuel cost and  
high grip ability)
- IT **Tires**  
(treads; tetraglycidyl bisaminomethylcyclohexane-modified  
**diene rubber blend tire** treads with  
low fuel cost and high grip ability)
- IT 9003-17-2P  
(**butadiene rubber**, epoxy-terminated;  
tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber blend tire** treads with low fuel cost and  
high grip ability)
- IT 9003-55-8P  
(styrene-**butadiene rubber**, epoxidized;  
tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber blend tire** treads with low fuel cost and  
high grip ability)
- IT 65992-66-7  
(tetraglycidyl bisaminomethylcyclohexane-modified **diene**  
**rubber blend tire** treads with low fuel cost and  
high grip ability)

L41 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:747765 Document No. 137:264232 Production method of modified  
conjugate **diene** polymer. Yamada, Haruo; Matsuda, Takaaki;  
Kitagawa, Yuichi (Asahi Kasei Corporation, Japan). Jpn. Kokai  
Tokkyo Koho JP 2002284814 A2 20021003, 13 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 2001-88368 20010326.

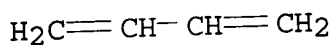
- AB The titled polymer was prepd. by copolymn. of **diene**  
monomer and arom. vinyl monomers with organolithium catalyst and the  
living terminals were further modified by reaction with functional  
compd. such as tetraglycidyl-1,3-bisaminomethyl-cyclohexane or  
.gamma.-glycidoxypropyltrimethoxysilane. The polymn. gave  
**diene** polymer product with low impurity ( acetylene and  
allenes) and the product is useful for manuf. **tires**.
- IT 9003-17-2DP, 1,3-**Butadiene** homopolymer, reaction  
product with .gamma.-glycidoxypropyltrimethoxysilane  
9003-55-8DP, 1,3-**Butadiene**-styrene copolymer,  
reaction product with tetraglycidyl-1,3-bisaminomethyl-cyclohexane  
65992-66-7DP, Tetra-N-glycidyl-1,3-  
bisaminomethylcyclohexane, reaction product with 1,3-  
**butadiene**-styrene copolymer  
(prepn. of modified conjugate **diene** polymer)



RN 9003-17-2 HCAPLUS  
CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

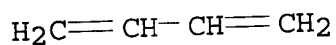
CRN 106-99-0  
CMF C4 H6



RN 9003-55-8 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

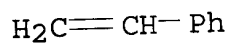
CM 1

CRN 106-99-0  
CMF C4 H6

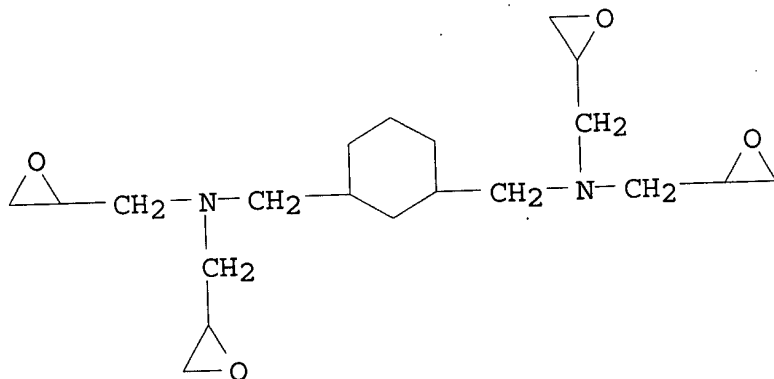


CM 2

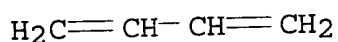
CRN 100-42-5  
CMF C8 H8



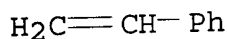
RN 65992-66-7 HCAPLUS  
CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)



IT 9003-55-8P  
(styrene-butadiene rubber, prepn. of modified conjugate  
diene polymer)  
RN 9003-55-8 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 106-99-0  
CMF C4 H6



CM 2  
  
CRN 100-42-5  
CMF C8 H8



IC ICM C08F008-00  
ICS C08F004-48; C08F036-04; C08F212-02  
CC 39-4 (Synthetic Elastomers and Natural Rubber)  
Section cross-reference(s): 35  
ST diene polymer modification glycidoxypropyltrimethoxysilane  
; tire diene polymer modification tetraglycidyl  
bisaminomethylcyclohexane  
IT Synthetic rubber, preparation  
(diene; prepn. of modified conjugate diene  
polymer)  
IT Epoxides  
Silanes  
(prepn. of conjugate diene polymer modified with  
tetraglycidyl-1,3-bisaminomethyl-cyclohexane or  
.gamma.-glycidoxypropyltrimethoxysilane)  
IT Styrene-butadiene rubber, preparation  
(prepn. of modified conjugate diene polymer)  
IT Tires  
(prepn. of modified conjugate diene polymer for  
tires)  
IT 2530-83-8DP, .gamma.-Glycidoxypropyltrimethoxysilane, reaction  
product with 1,3-butadiene homopolymer 9003-17-2DP  
, 1,3-Butadiene homopolymer, reaction product with  
.gamma.-glycidoxypropyltrimethoxysilane 9003-55-8DP, 1,3-  
Butadiene-styrene copolymer, reaction product with  
tetraglycidyl-1,3-bisaminomethyl-cyclohexane 65992-66-7DP,

Tetra-N-glycidyl-1,3-bisaminomethylcyclohexane, reaction product  
with 1,3-**butadiene**-styrene copolymer  
(prepn. of modified conjugate **diene** polymer)

IT 9003-55-8P  
(styrene-**butadiene** rubber, prepn. of modified conjugate  
**diene** polymer)

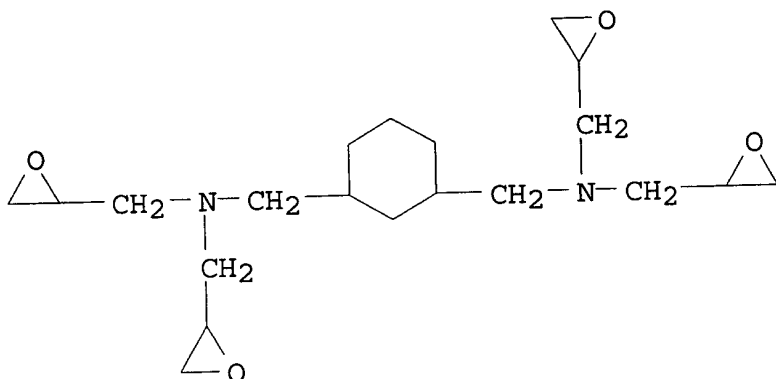
L41 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2003 ACS

2002:637715 Document No. 137:170859 Modified **rubbers**, their  
manufacture and uses. Fusamae, Hiroshi; Toda, Keiichi (Japan  
Elastomer Co., Ltd., Japan). PCT Int. Appl. WO 2002064636 A1  
20020822, 38 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ,  
BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ,  
EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY,  
DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT,  
SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO  
2002-JP1252 20020214. PRIORITY: JP 2001-38386 20010215.

AB Title **rubbers** have a structure as (R-Q)<sub>n</sub>X [R = conjugated  
**diene** (CD) polymer or their arom. vinyl compd. (AV) random  
copolymer contg. .ltoreq.50% AV; Q = AV polymer block or AV polymer  
block-contg. AV-CD copolymer with R/Q of 30-97:3-70; n .gtoreq.1  
integer; X = .gtoreq.2 epoxy-contg. compd. residue] and contain  
total AV content (A1) of 5-60%, AV block content (A2) of 3-40%, CD  
in vinyl configuration (A3) of .ltoreq.80 mol%, and modifier-coupled  
components with mol. wt. (MW) of 105 to 1,500,000. A  
tetraglycidyl-1,3-bisaminomethylcyclohexane-modified block SBR  
showing A1 24.9%, A2 15.3%, A3 14 mol%, R/Q of 80:20, and MW 582,000  
was kneaded with 40 phr **SiO2**, 1.7 phr S, additives and  
**vulcanizers** and pressed at 160.degree. for 20 min to form a  
sheet with Shore A hardness 71, compression set (25%, 70.degree., 22  
h) 21%, and 10% strain tan.delta. 0.140, 0.109, and 0.125 at  
0.degree., 50.degree., and 70.degree., resp.

IT 65992-66-7  
(block SBR modifiers; manuf. of polyepoxide-modified block SBR  
with sp. properties for vibration dampers or shoes)

RN 65992-66-7 HCAPLUS  
CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)

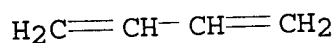


IT 9003-17-2  
 (butadiene rubber, manuf. of  
 polyepoxide-modified block SBR with sp. properties for vibration  
 dampers or shoes)

RN 9003-17-2 HCAPLUS  
 CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0  
 CMF C4 H6

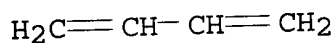


IT 106107-54-4P  
 (styrene-butadiene rubber, block, modified;  
 manuf. of polyepoxide-modified block SBR with sp. properties for  
 vibration dampers or shoes)

RN 106107-54-4 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,3-butadiene, block (9CI) (CA  
 INDEX NAME)

CM 1

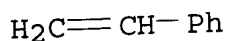
CRN 106-99-0  
 CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



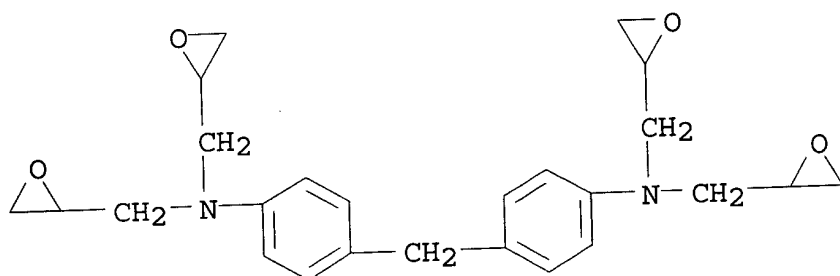
- IC ICM C08C019-22  
ICS C08L053-02; C08K003-36
- CC 39-4 (Synthetic Elastomers and Natural Rubber)
- IT Styrene-**butadiene rubber**, preparation  
(block, modified; manuf. of polyepoxide-modified block SBR with  
sp. properties for vibration dampers or shoes)
- IT **Butadiene rubber**, uses  
Isoprene **rubber**, uses  
Natural **rubber**, uses  
(manuf. of polyepoxide-modified block SBR with sp. properties for  
vibration dampers or shoes)
- IT 1675-54-3, Bisphenol A diglycidyl ether 2095-03-6, Bisphenol F  
diglycidyl ether **65992-66-7**  
(block SBR modifiers; manuf. of polyepoxide-modified block SBR  
with sp. properties for vibration dampers or shoes)
- IT 9003-17-2  
(**butadiene rubber**, manuf. of  
polyepoxide-modified block SBR with sp. properties for vibration  
dampers or shoes)
- IT 9003-31-0  
(isoprene **rubber**, manuf. of polyepoxide-modified block  
SBR with sp. properties for vibration dampers or shoes)
- IT 106107-54-4P  
(styrene-**butadiene rubber**, block, modified;  
manuf. of polyepoxide-modified block SBR with sp. properties for  
vibration dampers or shoes)
- L41 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2002:364079 Document No. 136:387377 Polyester yarn with sequentially  
coated reactive finishes, process for making the yarn, and a rubber  
composite employing the yarn. Anderson, Norman S.; Sherriff,  
Stephan F. (Arteva Technologies S.A.R.L., Switz.). Eur. Pat. Appl.  
EP 1205593 A1 20020515, 26 pp. DESIGNATED STATES: R: AT, BE, CH,  
DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV,  
FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP  
2001-125439 20011102. PRIORITY: US 2000-708330 20001108.
- AB A polyester yarn coated with a first coating of a reaction product  
of a halohydroxy org. compd. and a salt of a weak acid is coated  
with a second coating over the first coating of an epoxy resin  
having at least two epoxide groups, the resin being present in an  
amt. in the range from 0.001-1.0% of the yarn. The epoxy coated  
yarn is then twisted into cord, dipped in a resorcinol  
formaldehyde-latex (RFL), cured and embedded in rubber (which is  
heated), resulting in excellent adhesion of the cord to the rubber.
- IT 31305-94-9, Araldite MY 721  
(polyester yarn with sequentially coated reactive finishes,

process for making the yarn, and a rubber composite employing the yarn)

RN 31305-94-9 HCAPLUS  
CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3  
CMF C25 H30 N2 O4

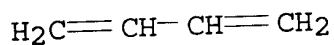


IT 9003-17-2D, **Polybutadiene**, polyepoxide  
(polyester yarn with sequentially coated reactive finishes,  
process for making the yarn, and a rubber composite employing the yarn)

RN 9003-17-2 HCAPLUS  
CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0  
CMF C4 H6



IC ICM D06M015-55  
ICS D06M013-148  
CC 40-9 (Textiles and Fibers)  
Section cross-reference(s): 39  
ST epoxy coated polyester yarn **tire** cord  
IT Coating materials

#### Tires

(polyester yarn with sequentially coated reactive finishes,  
process for making the yarn, and a rubber composite employing the yarn)

IT 31305-94-9, Araldite MY 721 71228-86-9, Denacol EX-622  
246039-57-6, Araldite EPN 9880CH 425615-22-1, Araldite ECN 9499  
(polyester yarn with sequentially coated reactive finishes,

process for making the yarn, and a rubber composite employing the yarn)

IT 56-81-5D, Glycerol, reaction products with epichlorohydrin  
 106-89-8D, Epichlorohydrin, reaction products with hydroxy compds.  
 107-21-1D, Ethylene glycol, reaction products with epichlorohydrin  
 127-08-2, Potassium acetate 327-62-8, Potassium propionate  
 584-08-7, Potassium carbonate 9003-17-2D,  
**Polybutadiene**, polyepoxide 16761-12-9, Potassium  
 heptanoate 32555-29-6, Glycerol glycidyl ether 43224-82-4  
 74911-53-8 118549-88-5, Polyglycerol glycidyl ether  
 (polyester yarn with sequentially coated reactive finishes,  
 process for making the yarn, and a rubber composite employing the  
 yarn)

L41 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2003 ACS

2001:661512 Document No. 135:228056 **Silica** reinforced  
**rubber** compositions comprising epoxy group-containing  
 compounds for improved processability and storage stability.  
 Schaal, Stephane; Coran, Aubert Y.; Mowdood, Syed K. (Pirelli  
 Pneumatici S.p.A., Italy). PCT Int. Appl. WO 2001064782 A1  
 20010907, 76 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ,  
 BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ,  
 EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,  
 MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,  
 TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ,  
 TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR,  
 GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
 (English). CODEN: PIXXD2. APPLICATION: WO 2001-US6326 20010228.  
 PRIORITY: US 2000-514641 20000229; US 2000-571503 20000515.

AB The disclosure relates to a process for improving the  
 processability, storage stability and/or cure rate of an uncured  
**silica** reinforced **rubber** compn. where  
**silica** comprises the major filler in the reinforced  
**rubber** compn., which comprises combining a mixt. comprising,  
**rubber**, **silica** and at least one org. compd. having  
 a low mol. wt. and a functional group wherein said functional group  
 is at least an epoxy group, such as an epoxy/ether, epoxy/hydroxyl,  
 epoxy/ester, epoxy/amine, ether/amine, episulfide, episulfide/ether,  
 episulfide/hydroxyl, episulfide/ester functional group located in a  
 terminal or sterically unhindered position in the mol. of said org.  
 compd. where the mol. wt. of said org. compd. having a low mol. wt.  
 is less than 7,000. Thus, a compn. comprising soln. SBR 10,  
**silica** 60, TESPT X50S 9.6, stearic acid 3, zinc oxide 2,  
 6PPD 1.5, wax 1, arom. oil 12, and N,N-diglycidylaniline 2 parts was  
**vulcanized** with a curing system (comprising sulfur 1.2, CBS  
 1.8, and diphenylguanidine, DPG 80, 1.25 parts), and showed cure  
 time 52 min, elongation 342.2, stress at break 18.42 MPa, Mooney  
 peak 69.5 kPa, and processability index 0.58, compared to 65,  
 356.25, 19.53, 119.0, and 1.0, resp., for a similar compn. without  
 N,N-diglycidylaniline.

IT 2095-06-9, N,N-Diglycidylaniline 5026-74-4,

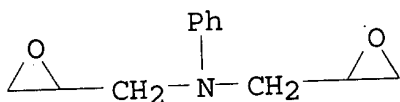
N,N-Diglycidyl-4-glycidyoxyaniline 7631-86-9,

Silica, uses

(silica reinforced rubber compns. comprising epoxy group-contg. compds. for improved processability and storage stability)

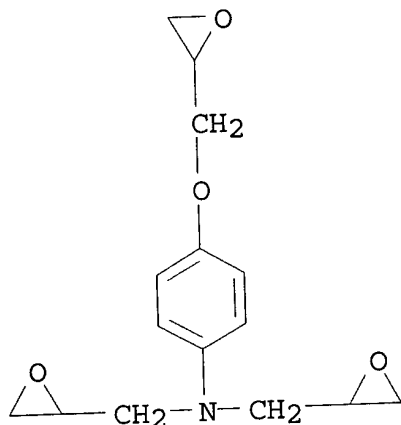
RN 2095-06-9 HCAPLUS

CN Oxiranemethanamine, N-(oxiranylmethyl)-N-phenyl- (9CI) (CA INDEX NAME)



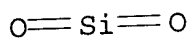
RN 5026-74-4 HCAPLUS

CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)- (9CI) (CA INDEX NAME)



RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9003-55-8

(styrene-butadiene rubber, silica reinforced rubber compns. comprising epoxy group-contg. compds. for improved processability and storage stability)

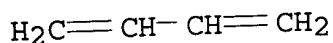
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

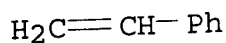


CRN 106-99-0  
CMF C4 H6



CM 2

CRN 100-42-5  
CMF C8 H8



- IC ICM C08L021-00
- ICS C08K005-15; C08K005-45; B60C001-00
- CC 39-9 (Synthetic Elastomers and Natural Rubber)
- ST **rubber** processing curing enhancer epoxy group contg compd;  
**silica** filled **rubber** compn epoxy org modifier
- IT Fatty acids, uses  
(dimer acids, diglycidyl esters; **silica** reinforced  
**rubber** compns. comprising epoxy group-contg. compds. for  
improved processability and storage stability)
- IT Castor oil  
(glycidyl ether deriv.; **silica** reinforced  
**rubber** compns. comprising epoxy group-contg. compds. for  
improved processability and storage stability)
- IT Silanes  
(organosilanes; **silica** reinforced **rubber**  
compns. comprising epoxy group-contg. compds. for improved  
processability and storage stability)
- IT Coupling agents  
(**silica** reinforced **rubber** compns. comprising  
epoxy group-contg. compds. for improved processability and  
storage stability)
- IT Epoxy resins, uses  
(**silica** reinforced **rubber** compns. comprising  
epoxy group-contg. compds. for improved processability and  
storage stability)
- IT Styrene-**butadiene rubber**, uses  
(**silica** reinforced **rubber** compns. comprising  
epoxy group-contg. compds. for improved processability and  
storage stability)
- IT 40372-72-3, Bis(3-triethoxysilylpropyl) tetrasulfide  
(coupling agent; **silica** reinforced **rubber**  
compns. comprising epoxy group-contg. compds. for improved  
processability and storage stability)
- IT 122-60-1, Phenyl glycidyl ether 2095-06-9,  
N,N-Diglycidylaniline 2211-94-1, Glycidyl 4-methoxyphenyl ether

- 2386-87-0, 3,4-Epoxy cyclohexylmethyl-3,4-epoxycyclohexanecarboxylate  
 2425-79-8, 1,4-Butanediol diglycidyl ether 2426-08-6, Butyl  
 glycidyl ether 2461-15-6, 2-Ethylhexyl glycidyl ether 2461-40-7,  
 Glycidyl butyrate 3146-39-2, exo-2,3-Epoxy norbornane 4016-14-2,  
 Isopropyl glycidyl ether 4436-24-2, (2,3-Epoxypropyl)benzene  
**5026-74-4**, N,N-Diglycidyl-4-glycidyl oxyaniline 5455-98-1,  
 (2,3-Epoxypropyl)phthalimide 5493-45-8, Diglycidyl-1,2-  
 Cyclohexanedicarboxylate **7631-86-9**, **Silica**, uses  
 17557-23-2, Neopentyl glycol diglycidyl ether 25068-38-6D,  
 Bisphenol A-epichlorohydrin copolymer, glycidyl 4-methoxyphenyl  
 ethers 26142-30-3, Polypropylene glycol diglycidyl ether  
 26447-14-3, Cresyl glycidyl ether 26761-45-5, Glycidyl  
 neodecanoate 29756-57-8, Nonylphenyl glycidyl ether 79347-31-2,  
 Cyclohexylmethyl 3,4-epoxycyclohexanecarboxylate 85721-25-1,  
 1,2-Epoxy-9-decene 97052-23-8, Formaldehyde-phenylglycidyl ether  
 copolymer 359013-45-9, Penacolate CRL 411  
 (silica reinforced **rubber** compns. comprising  
 epoxy group-contg. compds. for improved processability and  
 storage stability)  
 IT 3101-60-8, p-tert-Butylphenyl glycidyl ether  
 (silica reinforced **rubber** compns. comprising  
 epoxy group-contg. compds. for improved processability and  
 storage stability)  
 IT 9003-55-8  
 (styrene-butadiene **rubber**, **silica**  
 reinforced **rubber** compns. comprising epoxy group-contg.  
 compds. for improved processability and storage stability)

L41 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2003 ACS

2001:347117 Document No. 134:341510 Modified conjugated **diene**  
 polymers, and rubber compositions and pneumatic **tires**  
 using them. Omura, Tetsuya; Morita, Koichi (Bridgestone Corp.,  
 Japan). Jpn. Kokai Tokkyo Koho JP 2001131227 A2 20010515, 12 pp.  
 (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-310233 19991029.

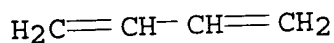
AB N-contg. heterocyclic groups are bonded to org. groups having  
 2-hydroxy-1,3-propylene groups in conjugated **diene**  
 polymers [AN[CH<sub>2</sub>CH(OH)CH<sub>2</sub>D]]nCH<sub>2</sub>CH(OH)CH<sub>2</sub>D (A = C1-3 alkylene; D =  
 conjugated **diene** polymer; n = 0, 1) via .gtoreq.1 N  
 group(s) in the heterocycles. Thus, a mixt. contg.  
 1-benzyl-4-glycidylpiperazine-modified 1,3-butadiene  
 rubber, natural rubber, Seast KH (C black), and vulcanizers was  
 vulcanized to give a test piece showing low fuel-consumption  
 property and good abrasion resistance.

IT 9003-17-2P  
 (butadiene rubber, reaction products with  
 glycidyl-contg. heterocyclic compds.; N-contg. heterocyclic  
 group-modified conjugated **diene** rubbers with low  
 fuel-consumption property for **tire** treads)

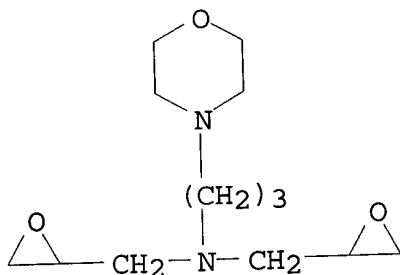
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

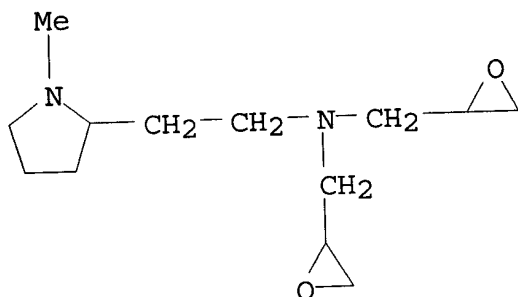
CRN 106-99-0  
CMF C4 H6



IT 338410-84-7DP, reaction products with **butadiene**  
polymers 338410-86-9DP, reaction products with  
**butadiene** polymers  
(rubber; N-contg. heterocyclic group-modified conjugated  
**diene** rubbers with low fuel-consumption property for  
**tire** treads)  
RN 338410-84-7 HCAPLUS  
CN 4-Morpholinepropanamine, N,N-bis(oxiranylmethyl)- (9CI) (CA INDEX  
NAME)



RN 338410-86-9 HCAPLUS  
CN 2-Pyrrolidineethanamine, 1-methyl-N,N-bis(oxiranylmethyl)- (9CI)  
(CA INDEX NAME)



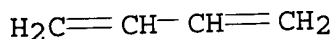
IT 9003-55-8P  
(styrene-**butadiene** rubber, reaction products with  
glycidyl-contg. heterocyclic compds.; N-contg. heterocyclic  
group-modified conjugated **diene** rubbers with low  
fuel-consumption property for **tire** treads)

RN 9003-55-8 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

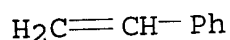
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



- IC ICM C08F008-30  
 ICS B60C001-00; C08F036-04; C08K003-04; C08K003-36; C08L015-00
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST nitrogen heterocycle modified conjugated **diene** rubber  
**tire**; tread **tire butadiene** rubber  
 nitrogen heterocycle modified; abrasion resistance rubber nitrogen  
 heterocycle modified; piperazine modified conjugated **diene**  
 rubber **tire** tread; morpholine modified conjugated  
**diene** rubber **tire** tread; pyrrolidine modified  
 conjugated **diene** rubber **tire** tread
- IT Abrasion-resistant materials  
 (N-contg. heterocyclic group-modified conjugated **diene**  
 rubbers with low fuel-consumption property for **tire**  
 treads)
- IT **Butadiene** rubber, preparation  
 Styrene-**butadiene** rubber, preparation  
 (reaction products with glycidyl-contg. heterocyclic compds.;  
 N-contg. heterocyclic group-modified conjugated **diene**  
 rubbers with low fuel-consumption property for **tire**  
 treads)
- IT **Tires**  
 (treads; N-contg. heterocyclic group-modified conjugated  
**diene** rubbers with low fuel-consumption property for  
**tire** treads)
- IT 9003-17-2P  
 (**butadiene** rubber, reaction products with  
 glycidyl-contg. heterocyclic compds.; N-contg. heterocyclic  
 group-modified conjugated **diene** rubbers with low  
 fuel-consumption property for **tire** treads)
- IT 4122-79-6DP, 1-Glycidyl-4-methylpiperazine, reaction products with

**butadiene** polymers 72566-27-9DP, 1-Glycidyl-4-phenylpiperazine, reaction products with **butadiene** polymers 335165-57-6DP, 1-Benzyl-4-glycidylpiperazine, reaction products with **butadiene** polymers 338410-78-9DP, 1-Glycidyl-4-methylhomopiperazine, reaction products with **butadiene** polymers 338410-80-3DP, reaction products with **butadiene** polymers 338410-82-5DP, reaction products with **butadiene** polymers 338410-84-7DP, reaction products with **butadiene** polymers 338410-86-9DP, reaction products with **butadiene** polymers (rubber; N-contg. heterocyclic group-modified conjugated **diene** rubbers with low fuel-consumption property for tire treads)

IT 9003-55-8P (styrene-**butadiene** rubber, reaction products with glycidyl-contg. heterocyclic compds.; N-contg. heterocyclic group-modified conjugated **diene** rubbers with low fuel-consumption property for tire treads)

L41 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2001:247411 Document No. 134:267553 Conjugated-**diene**-styrene-based **rubber** composition. Nakafutami, Yasunobu; Saito, Akira; Yamada, Haruo; Kubo, Nobuaki (Asahi Kasei Kabushiki Kaisha, Japan; Nakafutami, Hiromi; Nakafutami, Sakiho; Nakafutami, Takekazu). PCT Int. Appl. WO 2001023467 A1 20010405, 60 pp. DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2000-JP6600 20000926. PRIORITY: JP 1999-272070 19990927; JP 1999-272090 19990927.

AB Title compn. with good processability, improved balance between low rolling resistance and wet skid resistance, and mech. strength comprises (A) **rubbery** conjugated-**diene** polymer or **rubbery** conjugated-**diene**/styrene copolymer 100, wherein >60 wt% thereof is modified by reacting active ends of the **rubbery** polymer with >2 epoxy group-contg. polyfunctional compd., the mol. wt. distribution Mw/Mn of the polymer is 1.05-3.0, and the wt.-av. mol. wt. of the polymer is 100,000-2,000,000; (B) **rubber** extender oil 1-100; (C) reinforcing **silica** 25-100, and (D) **vulcanizing** agent and **vulcanizing** accelerator 1.0-20 parts. Thus a compn. comprising tetraglycidyl-1,3-bisaminomethylcyclohexane-modified styrene-**butadiene** **rubber** 100, Sonix X 140 20, **silica** 50, Seast KH 5, Si 69 5, N-cyclohexyl-2-benzothiazylsulfeneamide 1.7, diphenylguanidine 2, and other additives was prepd., showing viscosity (130.degree.) 62, tensile strength 17.5 MPa, Tan.delta. at 50.degree. 0.147, and Tan.delta. at 0.degree. 0.802.

IT 9003-17-2 (butadiene **rubber**, of cis-1,4-configuration; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)

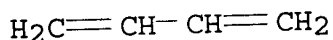
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6

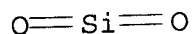


(butadiene rubber, prepn. and properties of  
conjugated-diene-styrene rubber compn.)

IT 7631-86-9, Silica, uses  
(filler; prepn. and properties of conjugated-diene  
-styrene rubber compn.)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9003-17-2D, Polybutadiene, epoxidized, reaction  
products with butadiene-styrene copolymer  
9003-55-8D, 1,3-Butadiene-styrene copolymer,  
reaction products with epoxy compds. 65992-66-7D, reaction  
products with butadiene-styrene copolymer  
(rubber; prepn. and properties of conjugated-  
diene-styrene rubber compn.)

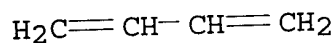
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6



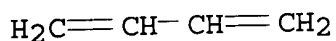
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

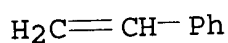
CMF C4 H6



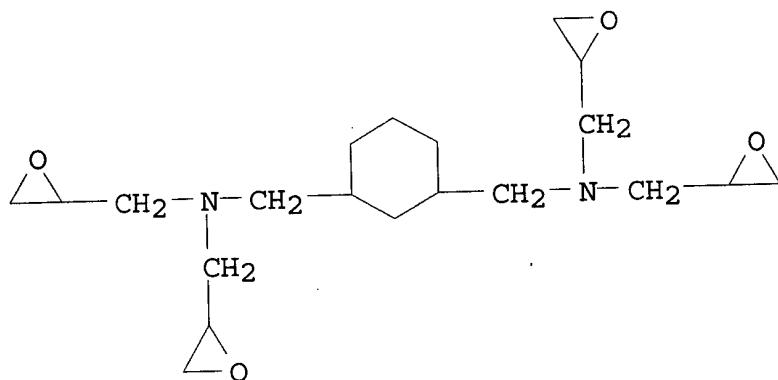
CM 2

CRN 100-42-5

CMF C8 H8



RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)

IT 9003-55-8

(styrene-butadiene rubber, SBR 1500, Asaprene  
1204, Tufdene 3335; prepn. and properties of conjugated-  
diene-styrene rubber compn.)

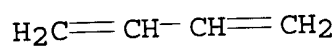
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

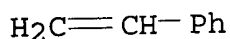
CRN 106-99-0

CMF C4 H6



CM 2

CRN 100-42-5  
CMF C8 H8

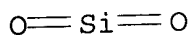


- IC ICM C08L009-00  
ICS C08L091-00; C08K003-36; C08K003-34
- CC 39-9 (Synthetic Elastomers and Natural Rubber)
- ST styrene **diene** copolymer **rubber** compn; extender  
oil styrene **diene** copolymer **rubber** compn;  
silica filler styrene **diene** copolymer  
**rubber** compn; **vulcanizing** agent styrene  
**diene** copolymer **rubber** compn; epoxy compd styrene  
**diene** copolymer **rubber** compn
- IT Natural **rubber**, properties  
(RSS 1; prepn. and properties of conjugated-**diene**  
-styrene **rubber** compn.)
- IT Styrene-**butadiene rubber**, properties  
(SBR 1500, Asaprene 1204, Tufdene 3335; prepn. and properties of  
conjugated-**diene**-styrene **rubber** compn.)
- IT Carbon black, uses  
(Seast KH, compn. contg.; prepn. and properties of conjugated-  
**diene**-styrene **rubber** compn.)
- IT Coupling agents  
Fillers  
Vulcanization accelerators and agents  
(compn. contg.; prepn. and properties of conjugated-**diene**  
-styrene **rubber** compn.)
- IT Silanes  
(coupling agent, compn. contg.; prepn. and properties of  
conjugated-**diene**-styrene **rubber** compn.)
- IT Hydrocarbon oils  
(extender oil, Sonic Process Oil X 140; prepn. and properties of  
conjugated-**diene**-styrene **rubber** compn.)
- IT **Butadiene rubber**, properties  
(of cis-1,4-configuration; prepn. and properties of conjugated-  
**diene**-styrene **rubber** compn.)
- IT Liquids  
(oils, compn. contg.; prepn. and properties of conjugated-  
**diene**-styrene **rubber** compn.)
- IT **Butadiene rubber**, properties  
(prepn. and properties of conjugated-**diene**-styrene  
**rubber** compn.)
- IT 9003-17-2  
(**butadiene rubber**, of cis-1,4-configuration;  
prepn. and properties of conjugated-**diene**-styrene  
**rubber** compn.)
- IT 9003-17-2  
(**butadiene rubber**, prepn. and properties of  
conjugated-**diene**-styrene **rubber** compn.)



- IT 40372-72-3, Si 69  
(compn. contg.; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)
- IT 7631-86-9, Silica, uses  
(filler; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)
- IT 7646-78-8D, Tin tetrachloride, reaction products with **butadiene**-styrene copolymer 9003-17-2D, **Polybutadiene**, epoxidized, reaction products with **butadiene**-styrene copolymer 9003-55-8D, 1,3-**Butadiene**-styrene copolymer, reaction products with epoxy compds. 10026-04-7D, Tetrachlorosilane, reaction products with **butadiene**-styrene copolymer 65992-66-7D, reaction products with **butadiene**-styrene copolymer (rubber; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)
- IT 9003-55-8  
(styrene-**butadiene rubber**, SBR 1500, Asaprene 1204, Tufdene 3335; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)
- IT 95-33-0, N-Cyclohexyl-2-benzothiazylsulfenamide 102-06-7, Diphenylguanidine  
(vulcanizing agent; prepn. and properties of conjugated-**diene**-styrene **rubber** compn.)

- L41 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2000:830189 Document No. 134:5817 Surface-treated inorganic fillers for **rubbers** or resins. Sato, Seiji (Chugoku Gomu Kogyo K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2000327947 A2 20001128, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-142909 19990524.
- AB Title fillers are inorg. fillers treated with 5-100% (preferably, based on 100 parts fillers) tertiary amino N-contg. tetra-functional epoxy oligomers (e.g., condensates of m-xylylene diamine and epichlorohydrin) at preferable temp. of 50-200.degree.. A natural **rubber** compn. contg. 1.5 phr S and 25 phr Tetrad X-treated SiO<sub>2</sub> (5:20 Tetrad X and SiO<sub>2</sub>, at 150.degree. for 40 min) was **vulcanized** at 150.degree. over 10 min to form a product showing low plasticization and high mech. strength and abrasion resistance.
- IT 7631-86-9, Silica, uses 64020-73-1, Tetrad X  
(Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



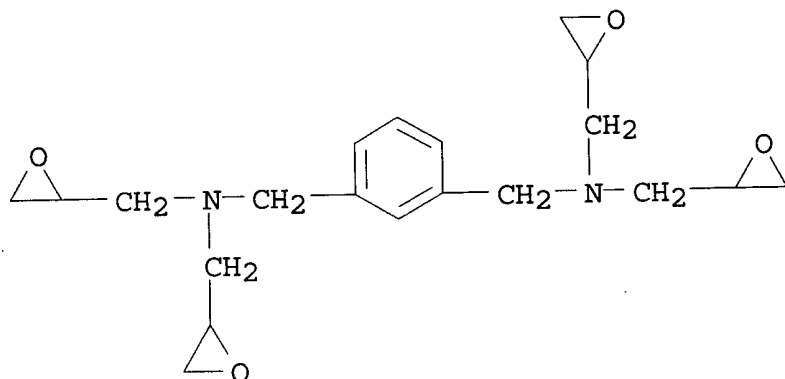
RN 64020-73-1 HCAPLUS

CN 1,3-Benzenedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 63738-22-7

CMF C20 H28 N2 O4



IT 9003-18-3

(nitrile **rubber**, Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)

RN 9003-18-3 HCAPLUS

CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 107-13-1

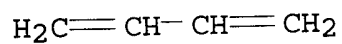
CMF C3 H3 N



CM 2

CRN 106-99-0

CMF C4 H6



IC ICM C09C003-10

ICS C08G059-10

CC 39-9 (Synthetic Elastomers and Natural Rubber)

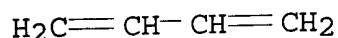
- Section cross-reference(s): 38
- ST abrasion resistance fast **vulcanization rubber**  
Tetrad treated inorg filler; epoxy resin flexibility Tetrad treated inorg filler
- IT Abrasion-resistant materials  
Fillers  
(Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- IT Epoxy resins, uses  
Natural **rubber**, uses  
Nitrile **rubber**, uses  
(Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- IT **Vulcanization**  
(fast; Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- IT 7631-86-9, Silica, uses 64020-73-1,  
Tetrad X  
(Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- IT 9003-18-3  
(nitrile **rubber**, Tetrad X-treated inorg fillers for **rubbers** for high abrasion resistance and fast **vulcanization** and for epoxy resins for flexibility)
- L41 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
2000:608814 Document No. 133:194469 Prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue. Kondo, Haruhiko; Manabe, Takao; Kishi, Hajime (Toray Industries, Inc., Japan). PCT Int. Appl. WO 2000050495 A1 20000831, 42 pp. DESIGNATED STATES: W: KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1999-JP7333 19991227. PRIORITY: JP 1999-42868 19990222; JP 1999-276327 19990929.
- AB The reinforced rubber materials useful for hose, belt, **tire**, etc., comprise (A) as prepregs, carbon fibers which have been impregnated with a liq. rubber having viscosity at 70.degree. of 0.01-100 Pa.cntdot.s and contg. substantially no solvents, and (B) as matrix, the same rubber, and are obtained by crosslinking the liq. rubber in the prepreg. Thus, kneading Poly bd-R 45HT (OH-terminated **butadiene** rubber) 100 with Coronate 2512 (isocyanate) 18 and S-Lec BM-S (polyvinyl butyrals) 5 parts gave a liq. rubber with viscosity at 70.degree. of 0.05 Pa.cntdot.s, which was coated on a release paper to pickup wt. of 52 g/m2, sandwiched on 2 sides of a carbon fiber fabric (190 g/m2), and hot pressed to give a prepreg. A laminate of 30 plies of the prepreg had excellent flexural fatigue resistance.

IT 9003-17-2  
 (butadiene rubber, hydroxy-terminated, Poly bd-R 45HT;  
 prepregs and fiber-reinforced rubber materials with good  
 dimensional stability and resistance to heat, water and flexural  
 fatigue)

RN 9003-17-2 HCAPLUS  
 CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0  
 CMF C4 H6



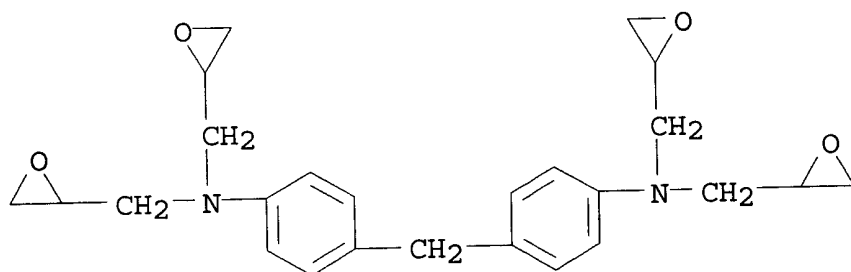
(butadiene rubber, of cis-1,4-configuration, Nipol BR  
 1220; prepregs and fiber-reinforced rubber materials with good  
 dimensional stability and resistance to heat, water and flexural  
 fatigue)

IT 31305-94-9, Sumiepoxy ELM 434  
 (crosslinking agents; prepregs and fiber-reinforced rubber  
 materials with good dimensional stability and resistance to heat,  
 water and flexural fatigue)

RN 31305-94-9 HCAPLUS  
 CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-  
 (oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3  
 CMF C25 H30 N2 O4



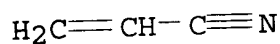
IT 9003-18-3  
 (nitrile rubber, carboxy-contg., Nipol DN 601; prepregs and  
 fiber-reinforced rubber materials with good dimensional stability  
 and resistance to heat, water and flexural fatigue)

RN 9003-18-3 HCAPLUS  
 CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 107-13-1

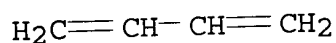
CMF C3 H3 N



CM 2

CRN 106-99-0

CMF C4 H6



(nitrile rubber, carboxy-terminated, CTBN 1300; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue  
(nitrile rubber, prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue

IT 9003-55-8

(styrene-**butadiene** rubber, hydrogenated, block, triblock, Kraton G 1650, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)

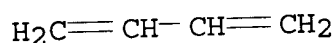
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

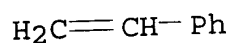
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



- (styrene-**butadiene** rubber, hydrogenated, block, triblock, maleated, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IC ICM C08J005-24  
ICS F16G001-08; F16G005-06; B60C001-00
- CC 39-15 (Synthetic Elastomers and Natural Rubber)
- IT Styrene-**butadiene** rubber, properties  
(hydrogenated, block, triblock, Kraton G 1650, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT Styrene-**butadiene** rubber, properties  
(hydrogenated, block, triblock, maleated, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT **Butadiene** rubber, properties  
(hydroxy-terminated, Poly bd-R 45HT; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT **Butadiene** rubber, properties  
(of cis-1,4-configuration, Nipol BR 1220; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT Belts  
Crosslinking agents  
**Tires**  
(prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-17-2  
(**butadiene** rubber, hydroxy-terminated, Poly bd-R 45HT; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-17-2  
(**butadiene** rubber, of cis-1,4-configuration, Nipol BR 1220; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 461-58-5, Epicure DICY 7 9046-10-0, Jeffamine D-2000  
31305-94-9, Sumiepoxy ELM 434 141255-39-2, Desmodur TPLS  
2759 191941-04-5, Coronate 2512  
(crosslinking agents; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-18-3  
(nitrile rubber, carboxy-contg., Nipol DN 601; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)

- IT 9003-18-3  
(nitrile rubber, carboxy-terminated, CTBN 1300; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-18-3  
(nitrile rubber, prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-55-8  
(styrene-**butadiene** rubber, hydrogenated, block, triblock, Kraton G 1650, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)
- IT 9003-55-8  
(styrene-**butadiene** rubber, hydrogenated, block, triblock, maleated, thermoplastic elastomer; prepregs and fiber-reinforced rubber materials with good dimensional stability and resistance to heat, water and flexural fatigue)

L41 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1999:101141 Document No. 130:183446 Epoxy resin compositions for fiber reinforced composites and their manufacture. Hayashi, Masahiko; Azuma, Toshiaki; Kishi, Hajime (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 11035794 A2 19990209 Heisei, 7 pp.

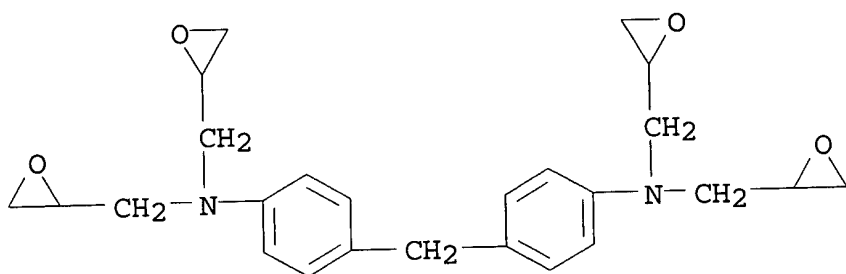
- AB Title compns., useful for fabric prepregs having smooth surface with reduced porosity as structural materials in aircrafts, automobiles, etc. (no data), comprise epoxy resins, hardeners, inorg. particles, and **butadiene-acrylonitrile rubbers**, wherein the inorg. particles are dispersed in a part of the epoxy resins. Thus, 30 parts Epikote 828 (bisphenol A epoxy) was mixed with ESCN 220 (glycidyl novolak epoxy resin) 20, Nipol 1072 (carboxyl-terminated acrylonitrile-**butadiene rubber**) 3.0, a master resin prepd. by dispersing 12 parts trimethylsilane-treated **silica** particles in 88 parts ELM 434 (tetraglycidylaminodiphenylmethane) 20 and 4,4'-diaminodiphenyl sulfone 27 parts to form a compn., with which a carbon fabric was impregnated and laminated to give a laminate having smooth surface.

- IT 31305-94-9, ELM 434 219909-63-4  
(epoxy resin compns. for fiber reinforced composites)

RN 31305-94-9 HCAPLUS  
CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3  
CMF C25 H30 N2 O4



RN 219909-63-4 HCAPLUS  
 CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with  
 (chloromethyl)oxirane, N,N'-(methylenedi-4,1-phenylene)bis[N-  
 (oxiranylmethyl)oxiranemethanamine], 4,4'-sulfonylbis[benzenamine]  
 and Sumiepoxy ESCN 220 (9CI) (CA INDEX NAME)

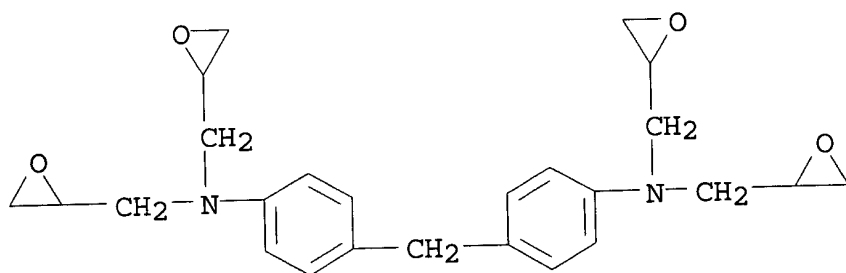
CM 1

CRN 76416-87-0  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

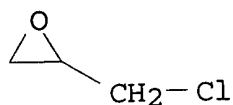
CRN 28768-32-3  
 CMF C25 H30 N2 O4



CM 3

CRN 106-89-8  
 CMF C3 H5 Cl O

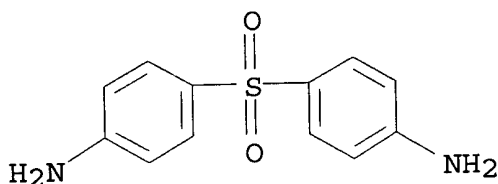




CM 4

CRN 80-08-0

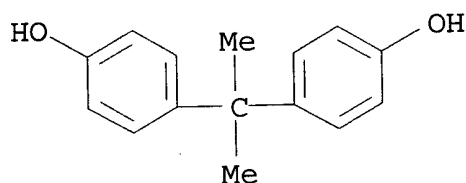
CMF C12 H12 N2 O2 S



CM 5

CRN 80-05-7

CMF C15 H16 O2



IT 9010-81-5, Acrylonitrile-**butadiene**-methacrylic  
acid copolymer  
(**rubber**; epoxy resin compns. for fiber reinforced  
composites)

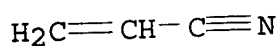
RN 9010-81-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,3-butadiene and  
2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 107-13-1

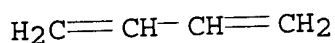
CMF C3 H3 N



CM 2

CRN 106-99-0

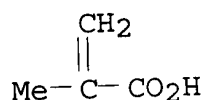
CMF C4 H6



CM 3

CRN 79-41-4

CMF C4 H6 O2



- IC ICM C08L063-00  
ICS C08L063-00; C08K003-00; C08L009-02
- CC 38-3 (Plastics Fabrication and Uses)
- ST epoxy resin fiber reinforced composite surface smoothness; nitrile  
**rubber silica** epoxy resin fiber prepreg
- IT Synthetic **rubber**, uses  
(acrylonitrile-**butadiene**-methacrylic acid, Nipol 1072;  
epoxy resin compns. for fiber reinforced composites)
- IT **Crosslinking** agents  
Fillers  
(epoxy resin compns. for fiber reinforced composites)
- IT 80-08-0, 4,4'-Diaminodiphenylsulfone  
(**crosslinking** agent; epoxy resin compns. for fiber  
reinforced composites)
- IT 25068-38-6, Epikote 828 31305-94-9, ELM 434 76416-87-0,  
Sumiepoxy ESCN 220 219909-63-4  
(epoxy resin compns. for fiber reinforced composites)
- IT 9010-81-5, Acrylonitrile-**butadiene**-methacrylic  
acid copolymer  
(**rubber**; epoxy resin compns. for fiber reinforced  
composites)

L41 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1998:94739 Document No. 128:181528 Sulfur-free **vulcanizable**  
**rubber** compositions. Katayama, Tatsuo (Uchiyama Kogyo K.  
K., Japan). Jpn. Kokai Tokkyo Koho JP 10036563 A2 19980210 Heisei,

5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-213241  
19960723.

AB Title compns. comprise 100 parts **rubbers** consisting of  
0-95% nitrile **rubbers** and 5-100% carboxy-contg. nitrile  
**rubbers**, .gtoreq.2 epoxy group-contg. compds., and N or P  
compds. A compn. comprising Nipol 1042 50, Nipol DN 1072 50,  
SiO2 40, stearic acid 1, paraffin oil 1,  
4,4'-(.alpha.,.alpha.-dimethylbenzyl)diphenylamine 1, Epikote 604  
2.5, and lauryltrimethylammonium Br- 1 part was pressed and  
**vulcanized** at 170.degree. for 10 min to form a sheet with  
JIS A hardness 72, tensile strength 183 kg/cm2, elongation 300%, and  
compression set (130.degree., 70 h) 38 and showing good heat aging  
and oil resistance.

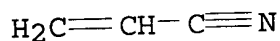
IT 9003-18-3  
(nitrile **rubber**, Nipol 1042; sulfur-free  
**vulcanizable** carboxylated nitrile **rubber**  
compns. contg. epoxy resins and quaternary ammonium or  
phosphonium salts)

RN 9003-18-3 HCAPLUS  
CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 107-13-1

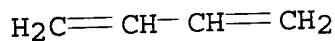
CMF C3 H3 N



CM 2

CRN 106-99-0

CMF C4 H6



(nitrile **rubber**, carboxy-contg., DN 1072; sulfur-free  
**vulcanizable** carboxylated nitrile **rubber**  
compns. contg. epoxy resins and quaternary ammonium or  
phosphonium salts)

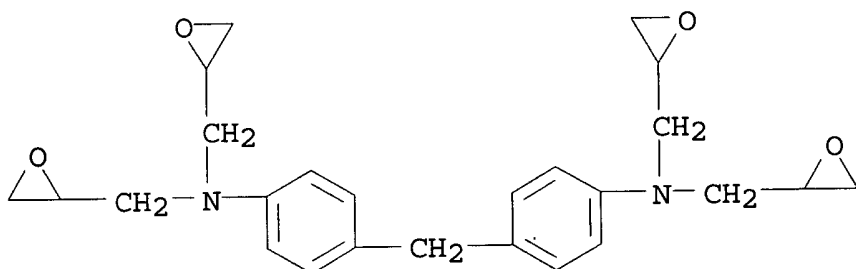
IT 31305-94-9, Epikote 604  
(sulfur-free **vulcanizable** carboxylated nitrile  
**rubber** compns. contg. epoxy resins and quaternary  
ammonium or phosphonium salts)

RN 31305-94-9 HCAPLUS  
CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-  
(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

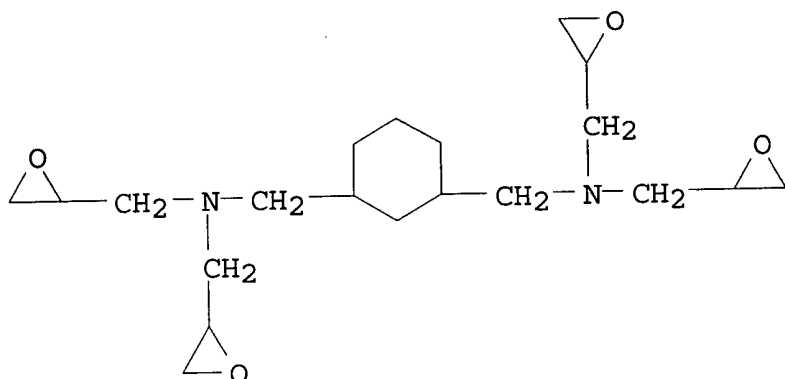
CRN 28768-32-3

CMF C25 H30 N2 O4



- IC ICM C08L013-00  
ICS C08L063-00; C08L013-00; C08L009-02
- CC 39-10 (Synthetic Elastomers and Natural Rubber)
- ST sulfur free **vulcanization** carboxylated nitrile **rubber**; quaternary ammonium salt **vulcanizable** nitrile **rubber**; phosphonium compd **vulcanizable** carboxylated nitrile **rubber**; epoxy resin **vulcanizable** carboxylated nitrile **rubber**
- IT Nitrile **rubber**, uses  
(Nipol 1042; sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT Nitrile **rubber**, uses  
(carboxy-contg., DN 1072; sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT Heat-resistant materials  
Oil-resistant materials  
**Vulcanization**  
(sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT Epoxides  
Epoxy resins, uses  
Phosphonium compounds  
Quaternary ammonium compounds, uses  
(sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT 9003-18-3  
(nitrile **rubber**, Nipol 1042; sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT 9003-18-3

- (nitrile **rubber**, carboxy-contg., DN 1072; sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- IT 1119-94-4, Lauryltrimethylammonium bromide 2224-15-9, Ethylene glycol diglycidyl ether 3115-68-2, Tetrabutylphosphonium bromide 25068-38-6, Epikote 828 31305-94-9, Epikote 604 (sulfur-free **vulcanizable** carboxylated nitrile **rubber** compns. contg. epoxy resins and quaternary ammonium or phosphonium salts)
- L41 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1997:164611 Document No. 126:158635 Rubber compositions for studless **tire** treads with improved gripping properties. Nakanimi, Yasunobu; Yamada, Haruo (Asahi Chemical Ind, Japan). Jpn. Kokai Tokkyo Koho JP 08333480 A2 19961217 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-164543 19950608.
- AB The compns. contain 100 parts a mixt. of 10-90 parts **butadiene**-styrene copolymer having styrene content 3-9%, **butadiene** vinyl content 18-29%, Moony viscosity (at 30.degree.) before coupling (I) 10-30, Moony viscosity after coupling (C) 30-80, C/I 1.5-5, and monomodal mol. wt. distribution pattern, and 10-90 parts natural rubbers, and optional 1-50 parts **butadiene** rubber, 10-80 parts carbon black, and 5-50 parts softeners. Thus, **butadiene** and styrene were polymd. in the presence of hexane, Me<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>NMe<sub>2</sub>, and BuLi at 100.degree., and treated with SiCl<sub>4</sub> to give a rubber, which (50 parts) was kneaded with natural rubber 50, Seast KH 45, arom. oil 5, Zn white 5, stearic acid 2, Nocrac 810 NA (antioxidant) 1, Nocrac CZ (vulcanizer) 1, and S 1.7 parts to give a vulcanizate showing hardness (at 23.degree.) 62, tensile strength 24.2 MPa, storage elastic modulus (at -30.degree.) 2.4 .times. 10<sup>-8</sup> dyne/cm<sup>2</sup>, loss elastic modulus (tan .delta., at -30.degree.) 0.34, Lupke resilience (at 70.degree.) 70%, wet skid resistance 48, and Moony viscosity (at 100.degree.) 64.
- IT 65992-66-7  
(coupling agents; rubber compns. for studless **tire** treads with improved gripping properties)
- RN 65992-66-7 HCAPLUS  
CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)- (9CI) (CA INDEX NAME)



IT 9003-55-8P

(styrene-**butadiene** rubber, rubber compns. for studless  
**tire** treads with improved gripping properties)

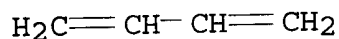
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

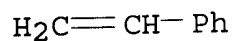
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



IT 9003-17-2P

(cis-1,4-**Butadiene** rubber, BR 01; rubber compns. for  
studless **tire** treads with improved gripping properties)

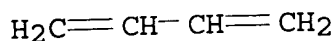
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6



- IC ICM C08L007-00  
ICS B60C001-00; C08K003-04; C08K005-01; C08L009-00; C08L009-06
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST rubber studless **tire** tread; styrene **butadiene**  
rubber **tire** tread; gripping improvement rubber  
**tire** tread; coupling agent styrene **butadiene**  
rubber; skid resistance rubber **tire** tread
- IT Carbon black, uses  
(Seast KH; rubber compns. for studless **tire** treads with  
improved gripping properties)
- IT Petroleum products  
(arom. oils, softeners; rubber compns. for studless **tire**  
treads with improved gripping properties)
- IT **Butadiene** rubber, preparation  
(of cis-1,4-configuration, BR 01; rubber compns. for studless  
**tire** treads with improved gripping properties)
- IT Aromatic oils (hydrocarbons)  
(petroleum, softeners; rubber compns. for studless **tire**  
treads with improved gripping properties)
- IT Coupling agents  
Softening agents  
(rubber compns. for studless **tire** treads with improved  
gripping properties)
- IT Natural rubber, preparation  
Styrene-**butadiene** rubber, preparation  
(rubber compns. for studless **tire** treads with improved  
gripping properties)
- IT **Tires**  
(treads; rubber compns. for studless **tire** treads with  
improved gripping properties)
- IT 115-21-9, Trichloroethylsilane 7646-78-8, Tin tetrachloride,  
reactions 10026-04-7, Silicon tetrachloride 65992-66-7  
(coupling agents; rubber compns. for studless **tire**  
treads with improved gripping properties)
- IT 9003-55-8P  
(styrene-**butadiene** rubber, rubber compns. for studless  
**tire** treads with improved gripping properties)
- IT 9003-17-2P  
(cis-1,4-**Butadiene** rubber, BR 01; rubber compns. for  
studless **tire** treads with improved gripping properties)
- L41 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1996:138196 Document No. 124:234682 Tread rubber compositions for  
**tires** with excellent abrasion and wet skid resistance and  
low hysteresis loss. Komai, Makoto; Ito, Kazuyuki; Iwama, Satoshi;  
Yoshida, Yasunori (Toyo Tire & Rubber Co, Japan). Jpn. Kokai Tokkyo  
Koho JP 07330959 A2 19951219 Heisei, 6 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 1994-122522 19940603.
- AB The compns. with good processability are based on (A) styrene-

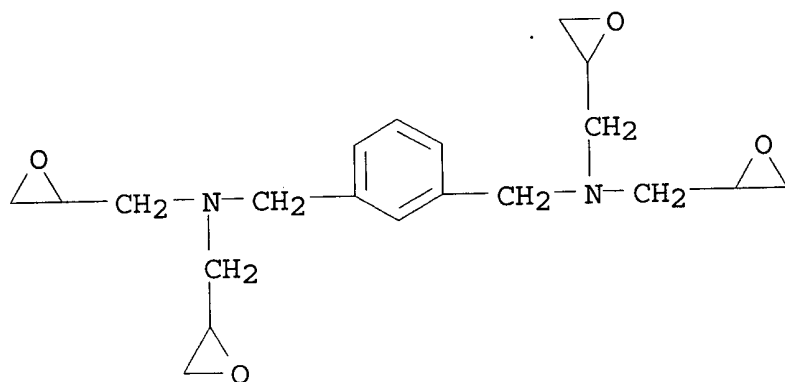
**butadiene** rubbers with wt.-av. mol. wt. (Mw) .gtoreq.500,000 and Mw/[no.-av. mol. wt. (Mn)] 2.2-3.2 obtained by polymn. of styrene and 1,3-**butadiene** in hydrocarbon solvents in the presence of organolithium catalysts and coupling of the resulting living polymers with diglycidylamino group-contg. multifunctional compds. or (B) other **diene** rubbers contg. .gtoreq.60% the styrene-**butadiene** rubbers, and contain 10-80 phr SiO<sub>2</sub> and .gtoreq.25 phr carbon black (total fillers 40-100 phr). Thus, a compn. comprising tetraglycidyl-m-xylenediamine-coupled styrene-**butadiene** rubber (Mw 680,000, Mw/Mn 3.0) 75, JSR-BR 01 25, Nipsil AQ 40, carbon black N234 30, Si 69 3.2, and process oil 30 parts showed Mooney viscosity (ML1+4, 100.degree.) .ltoreq.80. A **tire** with a tread made of the compn. showed vol. resistivity 107 .OMEGA.-cm, good abrasion and wet skid resistance, and low shear loss tangent.

IT 63738-22-7 91839-56-4

(coupling agents; diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)

RN 63738-22-7 HCAPLUS

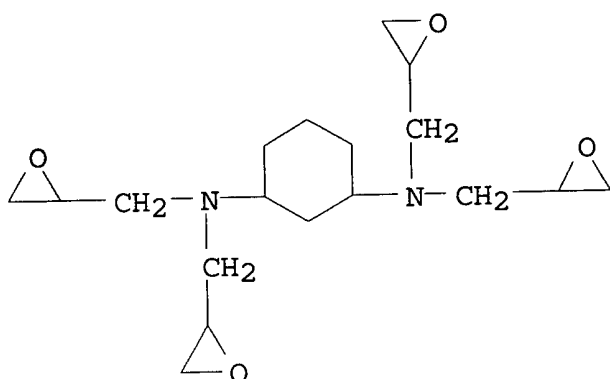
CN 1,3-Benzenedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)- (9CI)  
(CA INDEX NAME)



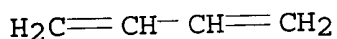
RN 91839-56-4 HCAPLUS

CN 1,3-Cyclohexanediamine, N,N,N',N'-tetrakis(oxiranylmethyl)- (9CI)  
(CA INDEX NAME)

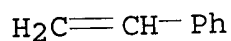




IT 9003-55-8  
 (rubber, branched; diglycidylamine-coupled SBR rubber-carbon  
 black-silica compns. for **tire** treads with good abrasion  
 and wet skid resistance and elec. cond. and low hysteresis loss)  
 RN 9003-55-8 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 106-99-0  
 CMF C4 H6

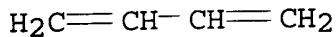


CM 2  
 CRN 100-42-5  
 CMF C8 H8



IT 9003-17-2  
 (rubber, of cis-1,4-configuration, JSR-BR 01; in  
 diglycidylamine-coupled SBR rubber-carbon black-silica compns.  
 for **tire** treads with good abrasion and wet skid  
 resistance and elec. cond. and low hysteresis loss)  
 RN 9003-17-2 HCAPLUS  
 CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 106-99-0

CMF C4 H6



- IC ICM C08L009-06  
ICS B60C001-00; C08K003-04; C08K003-36; C08L051-04
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST **tire** tread SBR rubber glycidylamine coupling; wet skid resistance **tire** tread SBR; abrasion resistance **tire** tread SBR rubber; silica filled SBR rubber **tire** tread; carbon black conductive SBR rubber **tire**
- IT Rubber, **butadiene**-styrene, properties  
(branched; diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT Abrasion-resistant materials  
(diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT Carbon black, uses  
(diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT Rubber, **butadiene**, properties  
(of cis-1,4-configuration, JSR-BR 01; in diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT **Tires**  
(treads, diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT 63738-22-7 91839-56-4  
(coupling agents; diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT 7631-86-9, Nipsil AQ, uses  
(diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT 9003-55-8  
(rubber, branched; diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)
- IT 9003-17-2  
(rubber, of cis-1,4-configuration, JSR-BR 01; in diglycidylamine-coupled SBR rubber-carbon black-silica compns. for **tire** treads with good abrasion and wet skid resistance and elec. cond. and low hysteresis loss)

L41 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2003 ACS

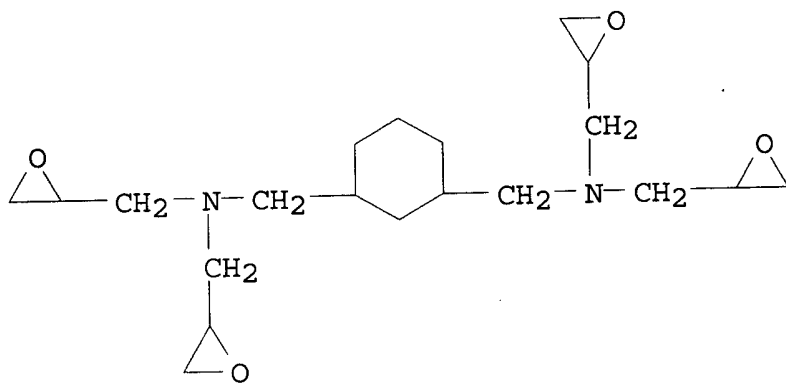
1996:67509 Document No. 124:119894 **Rubber** compositions containing **silica** for **tire** treads with low heat generation and good wet skid resistance. Saito, Akira; Sugyama, Takeshi (Asahi Chemical Ind, Japan). Jpn. Kokai Tokkyo Koho JP 07292161 A2 19951107 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-106339 19940422.

AB The title compns. contain SBR, **silica**, carbon black, silane coupling agents, extenders, **vulcanizing** agents, and additives. Polymg. styrene and **butadiene** in the presence of BuLi and treating the copolymer with 1,3-bis[(diglycidylamino)methyl]cyclohexane gave a branched copolymer which was used with Sonic X 140, Nipsil AQ, Seast KH, carbon black, Si 69, ZnO, stearic acid, iso-PrNH-p-C6H4NHPh, wax, S, N-cyclohexyl-2-benzothiazolesulfenamide, and diphenylguanidine in a compn. for **tire** treads.

IT 65992-66-7DP, reaction products with SBR  
(for **tire** treads with low heat generation and good wet skid resistance)

RN 65992-66-7 HCAPLUS

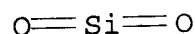
CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)



IT 7631-86-9, Nipsil AQ, uses  
(in SBR compns. for **tire** treads with low heat generation and good wet skid resistance)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9003-55-8P

(**rubber**, branched; for **tire** treads with low heat generation and good wet skid resistance)

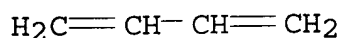
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

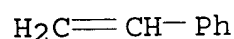
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



IT 9003-17-2

(**rubber**, for **tire** treads with low heat generation and good wet skid resistance)

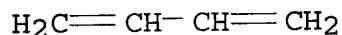
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6



IC ICM C08L009-06

ICS B60C001-00; C08C019-20; C08K003-04; C08K005-01; C08K005-54

CC 39-13 (Synthetic Elastomers and Natural Rubber)

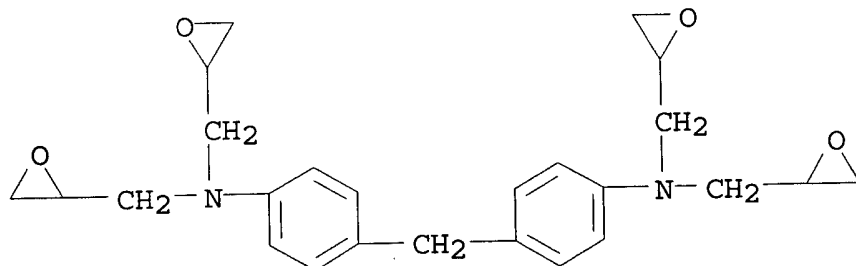
ST SBR **tire** tread wet skid resistance; **silica** SBR **tire** tread skid resistance; epoxide branching SBR **tire** tread; silane tetrachloro branching SBR **tire** tread

IT **Rubber, butadiene-styrene**, preparation  
(branched; for **tire** treads with low heat generation and good wet skid resistance)

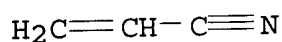
IT Carbon black, uses  
(fillers; in SBR compns. for **tire** treads with low heat generation and good wet skid resistance)

IT **Rubber, butadiene**, properties  
(for **tire** treads with low heat generation and good wet skid resistance)

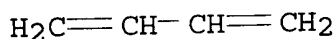
- IT **Tires**  
(treads, SBR compns. with low heat generation and good wet skid resistance)
- IT 10026-04-7DP, Silicon tetrachloride, reaction products with SBR  
65992-66-7DP, reaction products with SBR  
(for **tire** treads with low heat generation and good wet skid resistance)
- IT 7631-86-9, Nipsil AQ, uses 40372-72-3, Si 69  
(in SBR compns. for **tire** treads with low heat generation and good wet skid resistance)
- IT 9003-55-8P  
(**rubber**, branched; for **tire** treads with low heat generation and good wet skid resistance)
- IT 9003-17-2  
(**rubber**, for **tire** treads with low heat generation and good wet skid resistance)
- L41 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1994:657461 Document No. 121:257461 Polynorbornene-ultrahigh molecular weight polyethylene composite films for bonding incompatible rubber and plastic layers. Hirakawa, Hiroshi (Yokohama Rubber Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 06126899 A2 19940510 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-280153 19921019.
- AB The title composite films useful for processing of **tires**, conveyor belts, hose, etc. (no data) comprise a polynorbornene film layer and a ultrahigh-mol.-wt. polyethylene (I) which is obtained by slicing a rod of sintered I.
- IT 31305-94-9, Araldite MY720  
(polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- RN 31305-94-9 HCAPLUS  
CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 28768-32-3  
CMF C25 H30 N2 O4



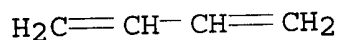
IT 9003-18-3  
(rubber, carboxy-terminated, Hycar-CTNB; polynorbornene-ultrahigh  
mol. wt. polyethylene composite films for bonding incompatible  
layers of)  
RN 9003-18-3 HCAPLUS  
CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 107-13-1  
CMF C3 H3 N



CM 2  
  
CRN 106-99-0  
CMF C4 H6



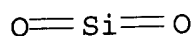
(rubber, carboxy-terminated, reaction products, with epoxy  
resins; polynorbornene-ultrahigh mol. wt. polyethylene composite  
films for bonding incompatible layers of)  
IT 9003-55-8  
(rubber, polynorbornene-ultrahigh mol. wt. polyethylene composite  
films for bonding incompatible layers of)  
RN 9003-55-8 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 106-99-0  
CMF C4 H6



CM 2  
  
CRN 100-42-5  
CMF C8 H8

H<sub>2</sub>C=CH-Ph

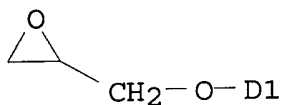
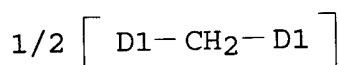
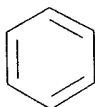
- IC ICM B32B027-00  
ICS B32B025-08; B32B027-32
- CC 38-3 (Plastics Fabrication and Uses)
- IT Epoxy resins, uses  
Rubber, **butadiene**-styrene, uses  
Rubber, neoprene, uses  
Rubber, nitrile, uses  
(polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- IT Rubber, synthetic  
(acrylonitrile-**butadiene**-methacrylic acid, polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- IT 25068-38-6, Epikote 828 **31305-94-9**, Araldite MY720  
37260-21-2, DER511  
(polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- IT **9003-18-3**  
(rubber, carboxy-terminated, Hycar-CTNB; polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- IT **9003-18-3**  
(rubber, carboxy-terminated, reaction products, with epoxy resins; polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- IT **9003-18-3 9003-55-8 9010-98-4**  
(rubber, polynorbornene-ultrahigh mol. wt. polyethylene composite films for bonding incompatible layers of)
- L41 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1994:165993 Document No. 120:165993 Toughened bicontinuous resin system. Malhotra, Vinay; Almen, Gregory R.; Hushower, Mary (ICI Composites Inc., USA). U.S. US 5266610 A 19931130, 5 pp. Cont. of U.S. Ser. No. 666,984, abandoned. (English). CODEN: USXXAM.  
APPLICATION: US 1992-951029 19920924. PRIORITY: US 1991-666984 19910311.
- AB The resin system comprises thermoplastic and thermoset resins wherein the phase morphol. is bicontinuous, and core-shell particulate toughening agents. A typical blend contained epoxy resins and **crosslinking** agents, a polyarylsulfone, and Nipol 5078.
- IT **7631-86-9, Silica**, uses  
(core, in core-shell toughening agents for bicontinuous thermoset-thermoplastic blends)
- RN 7631-86-9 HCAPLUS  
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 153600-25-0 153600-26-1 153600-27-2  
(polyarylsulfone blends contg. core-shell toughening agents)  
RN 153600-25-0 HCAPLUS  
CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)-  
polymer with 2,2'-[methylenebis(phenyleneoxymethylene)]bis[oxirane  
] and 4,4'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

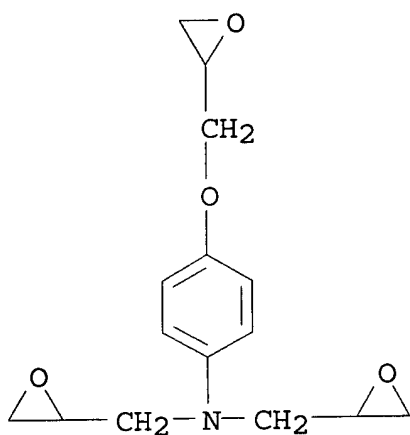
CRN 39817-09-9  
CMF C19 H20 O4  
CCI IDS



CM 2

CRN 5026-74-4  
CMF C15 H19 N O4

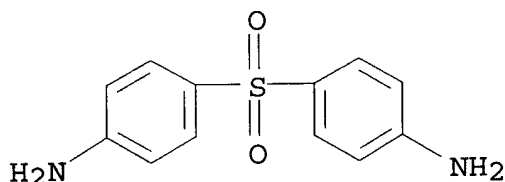




CM 3

CRN 80-08-0

CMF C12 H12 N2 O2 S



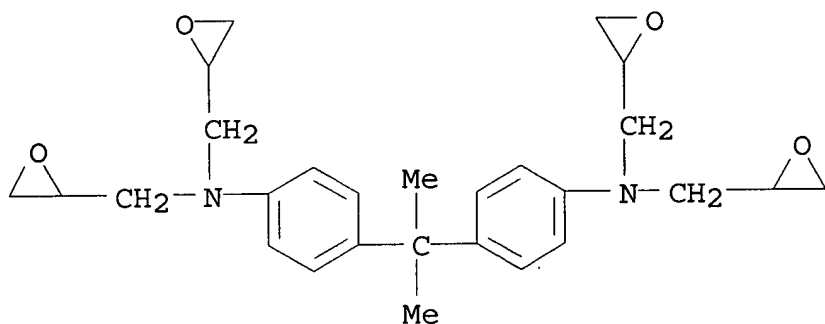
RN 153600-26-1 HCAPLUS

CN Oxiranemethanamine, N,N'-[(1-methylethylidene)bis(4,1-phenylene)]bis[N-(oxiranylmethyl)-, polymer with N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)oxiranemethanamine and 4,4'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 58086-89-8

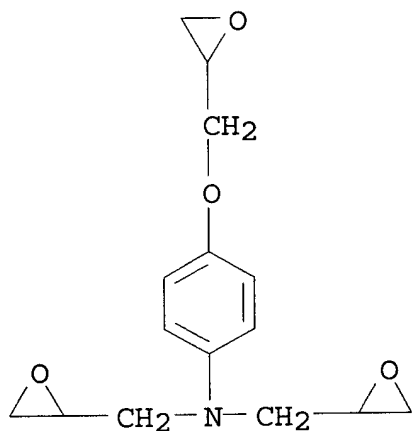
CMF C27 H34 N2 O4



CM 2

CRN 5026-74-4

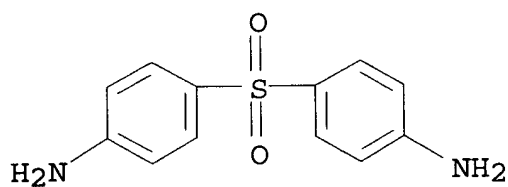
CMF C15 H19 N O4



CM 3

CRN 80-08-0

CMF C12 H12 N2 O2 S



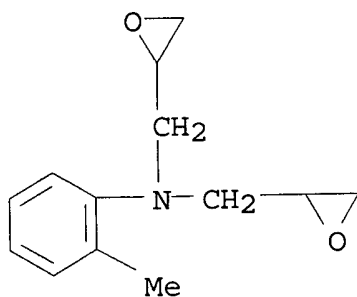
RN 153600-27-2 HCAPLUS

CN Oxiranemethanamine, N-(2-methylphenyl)-N-(oxiranylmethyl)-, polymer with 2,2'-[methylenebis(phenyleneoxymethylene)]bis[oxirane], N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)oxiranemethanamine and 4,4'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 40027-50-7

CMF C13 H17 N O2

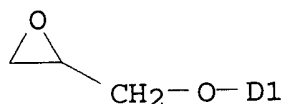
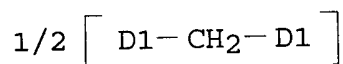
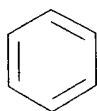


CM 2

CRN 39817-09-9

CMF C19 H20 O4

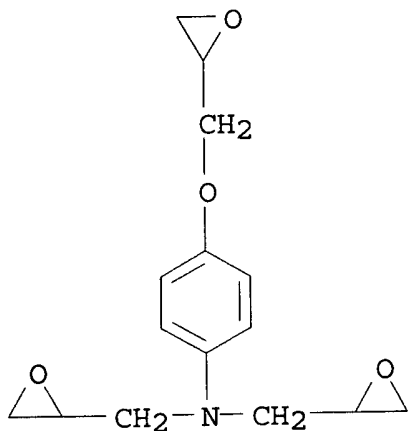
CCI IDS



CM 3

CRN 5026-74-4

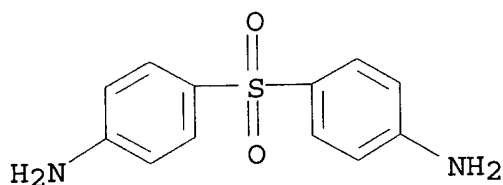
CMF C15 H19 N O4



CM 4

CRN 80-08-0

CMF C12 H12 N2 O2 S



IT 9003-55-8

(rubber, shell, in core-shell toughening agents for  
bicontinuous thermoset-thermoplastic blends)

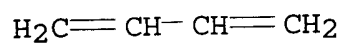
RN 9003-55-8 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

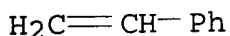
CRN 106-99-0

CMF C4 H6



CM 2

CRN 100-42-5  
CMF C8 H8

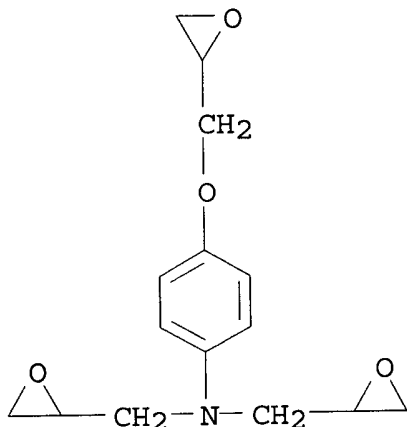


- IC ICM C08K009-04  
ICS C08F283-00
- NCL 523201000
- CC 37-6 (Plastics Manufacture and Processing)
- IT **Rubber, butadiene-styrene**, uses  
     **Rubber**, ethylene-propene  
     **Rubber**, isoprene, uses  
     **Rubber**, natural, uses  
     (shell, in core-shell toughening agents for bicontinuous  
     thermoset-thermoplastic blends)
- IT **Rubber**, synthetic  
     (acrylic acid-acrylonitrile-**butadiene**, core-shell  
     toughening agents, for bicontinuous thermoset-thermoplastic  
     blends)
- IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses  
     7631-86-9, **Silica**, uses  
     (core, in core-shell toughening agents for bicontinuous  
     thermoset-thermoplastic blends)
- IT 153600-25-0 153600-26-1 153600-27-2  
     (polyarylsulfone blends contg. core-shell toughening agents)
- IT 9003-31-0 9003-55-8 9010-79-1  
     (**rubber**, shell, in core-shell toughening agents for  
     bicontinuous thermoset-thermoplastic blends)
- L41 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
     1993:61125 Document No. 118:61125 High performance epoxy adhesives.  
     Behm, Dean Tallack; LaBelle, Thomas Loren Arthur; Wongkamolsesh,  
     Kachorn (Ciba-Geigy A.-G., Switz.). Eur. Pat. Appl. EP 488949 A2  
     19920603, 18 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT.  
     (English). CODEN: EPXXDW. APPLICATION: EP 1991-810902 19911120.  
     PRIORITY: US 1990-620244 19901129.
- AB The title adhesives comprise a component contg. .gtoreq.1 arom.  
     epoxy resin and a hardener component contg. a dimer acid-based  
     polyamide, .gtoreq.1 aliph. or alicyclic amine, and .gtoreq.1 arom.  
     amine where the compn. also contains a sorbitol polyglycidyl ether  
     in the epoxy component and/or a tertiary amine in the hardener  
     component as accelerators. An adhesive was prepd. from an epoxy  
     component contg. bisphenol A epoxy resin 47.50, epoxy resin of  
     sorbitol 12.50, epoxy resin of p-aminophenol 15.00, epoxysilane  
     0.50, Al powder 10.00, wollastonite 12.50, and fumed **silica**  
     2.00% and a hardener component contg. Versamid 140CE 22.92, and  
     amine adduct (HY 355) 12.73, 3-dimethylaminopropylamine 7.15,  
     amino-terminated nitrile **rubber** 49.95,  
     tris(dimethylamino)phenol 3.00, aminosilane 1.50, surfactant 0.25,  
     and fumed **silica** 2.50%.

IT 5026-74-4

(epoxy resin adhesive compns. contg. amine **crosslinkers**  
and)

RN 5026-74-4 HCAPLUS

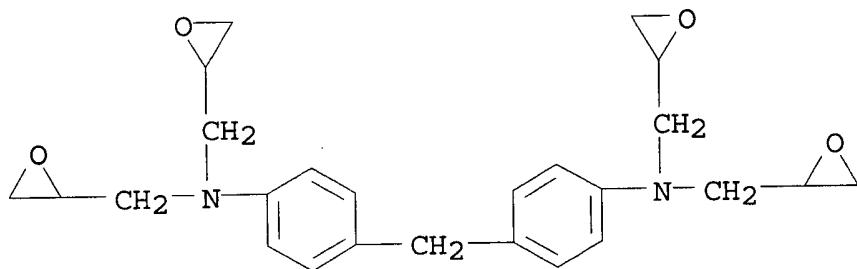
CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)

IT 28768-32-3

(epoxy resin adhesive compns., contg. amine hardeners)

RN 28768-32-3 HCAPLUS

CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)- (9CI) (CA INDEX NAME)



IT 9003-18-3

(rubber, amine-terminated, **crosslinking**  
agents contg., for epoxy resin adhesives)

RN 9003-18-3 HCAPLUS

CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 107-13-1

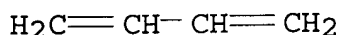
CMF C3 H3 N



CM 2

CRN 106-99-0

CMF C4 H6



- IC ICM C09J163-00  
ICS C08G059-50; C08G059-60
- CC 38-3 (Plastics Fabrication and Uses)
- IT **Crosslinking** agents  
(dimer acid-base polyimide-aliph. or alicyclic amine-arom. amine mixts., for epoxy resin adhesives, polyglycidyl ether of sorbitol or tertiary amine accelerators for)
- IT **Crosslinking** catalysts  
(polyglycidyl ethers of sorbitol or tertiary amines, for epoxy resin-amine adhesive compns.)
- IT Amines, uses  
(alicyclic, **crosslinking** agents contg., for epoxy resin adhesives)
- IT Amines, uses  
(aliph., **crosslinking** agents contg., for epoxy resin adhesives)
- IT **Rubber**, nitrile, uses  
(amine-terminated, **crosslinking** agents contg., for epoxy resin adhesives)
- IT Amines, uses  
(aryl, **crosslinking** agents contg., for epoxy resin adhesives)
- IT Polyamides, uses  
(dimer acid-based, **crosslinking** agents contg., for epoxy resin adhesives)
- IT Phenolic resins, miscellaneous  
(epoxy, novolak, epoxy resin adhesives contg., amine **crosslinkers** for)
- IT Epoxy resins, miscellaneous  
(phenolic, novolak, epoxy resin adhesives contg., amine **crosslinkers** for)
- IT Amines, uses  
(tertiary, **crosslinking** catalysts, for epoxy resin-amine adhesives)
- IT 25068-38-6, Bisphenol A-epichlorohydrin copolymer  
(adhesives, contg. amine **crosslinkers**)
- IT 80-08-0, Bis(p-aminophenyl)sulfone 92-87-5, Benzidine 101-77-9,

4,4'-Methylenedianiline 101-80-4, Diaminodiphenyl ether 104-78-9  
 106-50-3, p-Phenylenediamine, miscellaneous 107-15-3,  
 Ethylenediamine, miscellaneous 108-45-2, m-Phenylenediamine,  
 miscellaneous 109-55-7, N,N-Dimethylpropylenediamine 111-40-0,  
 Diethylenetriamine 111-41-1 112-24-3 112-57-2,  
 Tetraethylenepentamine 119-90-4, Dianisidine 124-09-4,  
 Hexamethylenediamine, miscellaneous 139-65-1 140-31-8,  
 1-Piperazineethanamine 141-43-5, Monoethanolamine, miscellaneous  
 141-86-6, 2,6-Diaminopyridine 616-47-7, 1-Methylimidazole  
 694-83-7, 1,2-Diaminocyclohexane 1477-55-0, m-Xylylenediamine  
 1761-71-3, Bis(p-aminocyclohexyl)methane 2579-20-6,  
 1,3-Bis(aminomethyl)cyclohexane 2855-13-2 3114-70-3,  
 1,4-Diaminocyclohexane 3377-24-0, 2,2-Bis(4-  
 aminocyclohexyl)propane 6864-37-5, Bis(4-amino-3-  
 methylcyclohexyl)methane 25376-45-8, Toluenediamine 25513-64-8  
 145538-07-4, Hy 355 145539-13-5, Versamid 140CE 145539-16-8, XB  
 3075

(**crosslinking** agents contg., for epoxy resin adhesives)

IT 25120-31-4 71228-86-9, XU-GY 358

(epoxy resin adhesive compns. contg. amine **crosslinkers**  
 )

IT 3454-29-3, Trimethylolpropane triglycidyl ether 5026-74-4  
 5493-45-8 36366-26-4, Trimethylolethane triglycidyl ether

(epoxy resin adhesive compns. contg. amine **crosslinkers**  
 and)

IT 25068-38-6, Bisphenol A-epichlorohydrin copolymer  
 (epoxy resin adhesive compns., contg. amine **crosslinkers**  
 )

IT 28768-32-3

(epoxy resin adhesive compns., contg. amine hardeners)

IT 9003-18-3

(**rubber**, amine-terminated, **crosslinking**  
 agents contg., for epoxy resin adhesives)

L41 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2003 ACS

1992:532735 Document No. 117:132735 Process for producing aromatic  
 polyamide fibers for rubber reinforcement. Kuribayashi, Hideyuki;  
 Koizumi, Tatsuya (Sumitomo Chemical Co., Ltd., Japan). PCT Int.  
 Appl. WO 9207133 A1 19920430, 22 pp. DESIGNATED STATES: W: US; RW:  
 DE, GB, NL. (Japanese). CODEN: PIXXD2. APPLICATION: WO  
 1991-JP1443 19911021. PRIORITY: JP 1990-286579 19901023; JP  
 1990-404285 19901220.

AB The title fibers are prepd. by treating aramid fibers with liqs.  
 contg. 0.1-30% arom. glycidylamines (A) contg. .gtoreq.2 epoxy  
 groups and 1-100 parts arom. amines per 100 parts A, subsequently  
 treating the fibers with liqs. contg. formaldehyde-resorcinol  
 copolymer (I) and rubber latexes, and curing the finishes. Thus,  
 poly(p-phenylene terephthalamide) cords were dipped in a liq. contg.  
 2.0 parts Sumiepoxy ELM-434 (II, tetraglycidyl-diaminodiphenylmethane  
 homopolymer) and 0.060 part 3,4'-diaminodiphenyl ether and cured 2  
 min at 150.degree. and 2 min at 240.degree.. The cords were then  
 immersed in a liq. contg. I and **butadiene**



-styrene-vinylpyridine rubber latex cured 2 min at 150.degree. and 2 min at 240.degree., sandwiched between 2 rubber compds., and vulcanized 15 min at 150.degree. to give embedded cords with layer bonding strength 18.5 kg/2 cm initially and 18.1 kg/2 cm after 3 day, in H<sub>2</sub>O, vs. 7.6 and 4.7, resp., using bisphenol A diglycidyl ether homopolymer instead of II.

IT 31305-94-9, Sumiepoxy ELM 434  
(finishes, contg. arom. diamines, for aramid fibers, for improved adhesion to rubber)

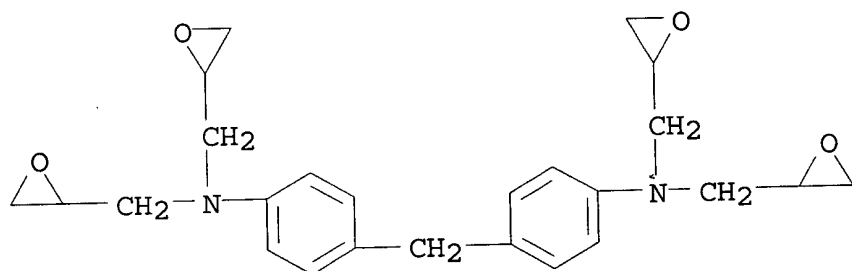
RN 31305-94-9 HCAPLUS

CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3

CMF C25 H30 N2 O4



IT 9019-71-0, Butadiene-styrene-vinylpyridine copolymer  
(rubber, resorcinol copolymer finishes contg., for aramid fibers)

RN 9019-71-0 HCAPLUS

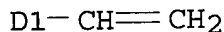
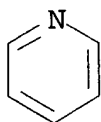
CN Pyridine, ethenyl-, polymer with 1,3-butadiene and ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 1337-81-1

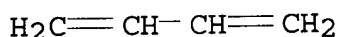
CMF C7 H7 N

CCI IDS



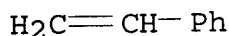
CM 2

CRN 106-99-0  
CMF C4 H6



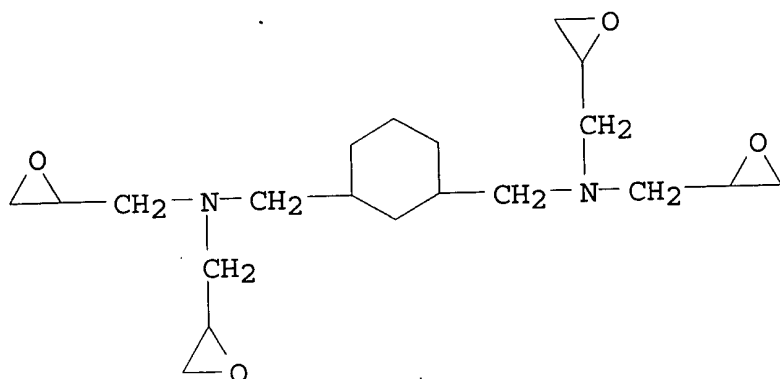
CM 3

CRN 100-42-5  
CMF C8 H8



IC ICM D06M015-693  
ICS D06M013-385; D06M015-55; C08J005-06  
ICA D01F006-60  
ICI C08L021-00, D06M101-36  
CC 39-13 (Synthetic Elastomers and Natural Rubber)  
ST aramid fiber finishing rubber reinforcement; epoxy resin finish  
aramid fiber; diaminodiphenyl ether finish aramid fiber;  
**tire** cord aramid fiber  
IT Polyamide fibers, miscellaneous  
(aramid, finishing of, with epoxy resins contg. arom. diamines,  
for **tire** cords)  
IT Rubber, synthetic  
(**butadiene**-styrene-vinylpyridine, resorcinol copolymer  
finishes contg., for aramid fibers)  
IT **Tires**  
(cords, aramid fibers, epoxy resins contg. arom. diamine as  
primary finishes for)  
IT 24938-64-5, Poly(P-phenyleneterephthalamide) 25035-37-4,  
p-Phenylenediamine-terephthalic acid copolymer  
(fiber, finishing of, with epoxy resins contg. arom. diamine, for  
**tire** cords)

- IT 31305-94-9, Sumiepoxy ELM 434  
(finishes, contg. arom. diamines, for aramid fibers, for improved  
adhesion to rubber)
- IT 9019-71-0, Butadiene-styrene-vinylpyridine  
copolymer  
(rubber, resorcinol copolymer finishes contg., for aramid fibers)
- L41 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1989:535792 Document No. 111:135792 Preparation and uses of  
**diene** block rubbers. Hattori, Yasuo; Kitagawa, Yuichi  
Moakuresuto Ta; Saito, Akira (Asahi Chemical Industry Co., Ltd.,  
Japan). Eur. Pat. Appl. EP 318052 A2 19890531, 69 pp. DESIGNATED  
STATES: R: BE, DE, ES, FR, GB, IT, NL. (English). CODEN: EPXXDW.  
APPLICATION: EP 1988-119810 19881128. PRIORITY: JP 1987-297475  
19871127; JP 1988-14500 19880127; JP 1988-44597 19880229; JP  
1988-53597 19880309; JP 1988-53598 19880309; JP 1988-125850  
19880525.
- AB **Diene** block rubbers, having improved cold flow, excellent  
phys. properties and processability, and useful for tire  
components and industrial parts, comprise (A) a  
**polybutadiene** (I) block having a sp. glass transition temp.  
(Tg), cryst. m.p., microstructure, and mol. wt. distribution  
[wt.-av. mol. wt. (Mw)/no.-av. mol. wt. (Mn)] and (B) a conjugated  
**diene** rubber block having a different Tg and cryst. m.p.,  
wherein the wt. ratio of block A to block B is 2-80:98-20, the mol.  
wt. is 20,000-500,000, and Mw/Mn is 1.1-5. The **diene**  
block rubber is prepd. by polymn. of **butadiene** (II) in an  
inert solvent in the presence of a catalyst comprising rare earth  
and organomagnesium compds. at 0-150.degree. to 80-93% trans units,  
adding an organolithium catalyst and polymg. II to .ltoreq.60% trans  
units at 30-200.degree., and stripping the inert solvent from the  
polymer. Thus, II was batch polymd. in cyclohexane in the presence  
of La versate (III), Bu2Mg, and BuLi at 68.degree. to give I  
having a microstructure 87% trans, 5% vinyl, and 8% cis, Mw/Mn 1.2,  
and cryst. m.p. 85.degree.. I soln. was mixed with addnl. BuLi,  
polymd. at 115.degree. for 1.5 h, stabilized, steam-stripped, and  
dried to give a mixt. of 72 wt.% **diene** block polymer and  
28 wt.% nonblock rubber. The wt. ratio of the resinous I block (A)  
to rubbery conjugated **diene** block (B) was 54:46. The  
rubber specimen showed cold flow 3, mill behavior excellent, tensile  
strength 215 kg/cm2, elongation 515%, and impact resilience 59,  
compared with 2, good, 170, 400, and 54, resp., for a similar rubber  
prepd. without III and Bu2Mg. I was an excellent toughening agent  
for polystyrene resins.
- IT 65992-66-7  
(manuf. in presence of, for stereoregular block **diene**  
rubber)
- RN 65992-66-7 HCAPLUS  
CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)



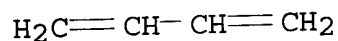
IT 106107-54-4  
(rubber, block, manuf. of stereoregular, catalysts and method for)

RN 106107-54-4 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,3-butadiene, block (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

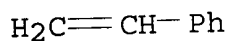
CMF C4 H6



CM 2

CRN 100-42-5

CMF C8 H8



IC ICM C08F297-04

ICS C08L053-02

CC 39-4 (Synthetic Elastomers and Natural Rubber)  
Section cross-reference(s): 37

ST rare earth catalyst polymn **diene**; magnesium organo catalyst polymn **diene**; **butadiene** polymn stereospecific catalyst; polystyrene toughening **butadiene** rubber

IT Rare earth metals, compounds  
(catalysts, for stereospecific polymn. of **dienes**)

IT **Tires**  
(stereoregular block **diene** rubber for, wear- and

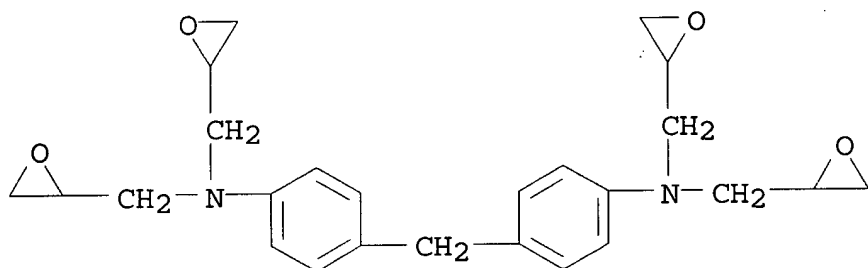
- wet-skid-resistant)
- IT Rubber, **butadiene**-styrene, preparation  
(block, manuf. of stereoregular, catalysts and method for)
- IT Polymerization catalysts  
(block, stereospecific, rare earth and organomagnesium compds.,  
for conjugated **dienes**)
- IT Fatty acids, compounds  
(branched, lanthanum salts, catalysts, for stereospecific polymn.  
of **dienes**)
- IT Rubber, synthetic  
(**butadiene**-**diene**, block, manuf. of  
stereoregular, catalysts and method for)
- IT 1191-47-5, Dibutylmagnesium 7439-91-0D, Lanthanum, versatic acid  
salts  
(catalysts, for stereospecific polymn. of **dienes**)
- IT 1461-22-9, Tributyltin chloride 7646-78-8, Tin tetrachloride, uses  
and miscellaneous **65992-66-7**  
(manuf. in presence of, for stereoregular block **diene**  
rubber)
- IT 9003-53-6P, Polystyrene  
(manuf. of impact-resistant, toughening agents for, stereoregular  
**butadiene** rubber as)
- IT 538-75-0, Dicyclohexylcarbodiimide  
(modifiers, for **diene** rubbers)
- IT **106107-54-4**  
(rubber, block, manuf. of stereoregular, catalysts and method  
for)

L41 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1989:408763 Document No. 111:8763 Glycidylamino compound-coupled  
**butadiene** rubbers for **tires**. Kitagawa, Yuichi;  
Yamada, Haruo (Asahi Chemical Industry Co., Ltd., Japan). Jpn.  
Kokai Tokkyo Koho JP 01001744 A2 19890106 Heisei, 14 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-156653 19870625.  
AB Compns. with good balance of abrasion resistance, antiaging,  
low-temp. hardness, and impact resilience contain 20-100 parts  
extender oils having volatile content (Cv) .ltoreq.0.3%, arom.  
hydrocarbon (Ca; Crootz anal.) .ltoreq.10%, and viscosity sp. gr.  
const. (Vc) .ltoreq.0.85 and 100 parts polymers (X2N)mR(NXY)n (m, n  
= 0-6 integers, n = 0; m .gtoreq. 1; m = 0, n .gtoreq. 2; R = Cl-20  
active H-contg. org. groups, or Si compds.; Y = glycidyl; X =  
CH2CHOHCH2D, D = **butadiene** polymer moiety) having  
glass-transition temp. (Tg) -50 to -100.degree. and wt.-av. mol. wt.  
(Mw) 5 .times. 104-106. A vulcanized compn. contg. 25 parts natural  
rubber and 75 parts mixt. of 50 parts paraffin oil having Cv 0.05%,  
Ca 3.0%, and Vc 0.8046 and 100 parts 2-tetraglycidyl-1,3-  
bisaminomethylcyclohexane-coupled 1,2-**butadiene**-1,3-  
**butadiene** polymer having Mw 5.5 .times. 104 and Tg  
-95.degree. showed impact resilience (JISK 6301; 70.degree.) 64,  
heat buildup 31.degree., abrasion resistance 110%, hardness 62 and  
75 at -10.degree. and -50.degree., resp., and good heat resistance  
(100.degree., 96 h).

IT 28768-32-3DP, reaction products with **butadiene**  
 rubber 63738-22-7DP, reaction products with  
**butadiene** rubber 65992-66-7DP, reaction products  
 with **butadiene** rubber  
 (manuf. of, oil-extended, for **tires**)

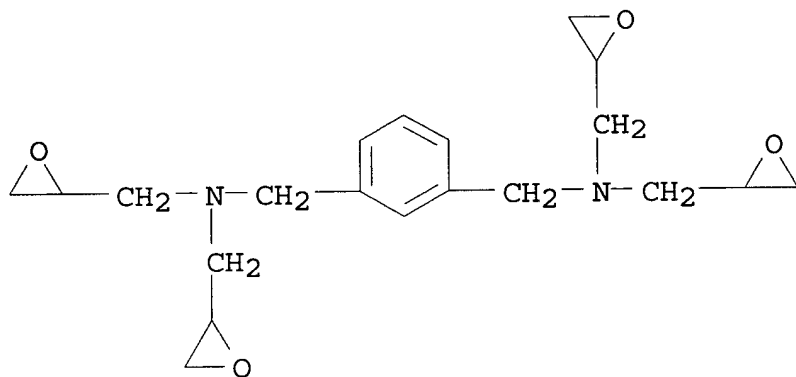
RN 28768-32-3 HCAPLUS

CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-  
 (oxiranylmethyl)- (9CI) (CA INDEX NAME)



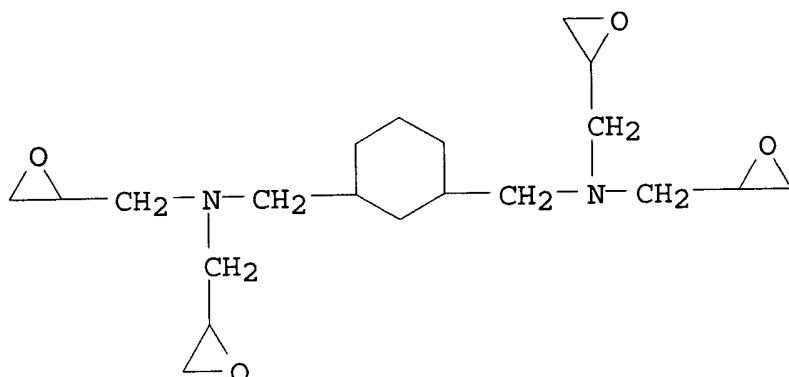
RN 63738-22-7 HCAPLUS

CN 1,3-Benzenedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)- (9CI)  
 (CA INDEX NAME)



RN 65992-66-7 HCAPLUS

CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl)-  
 (9CI) (CA INDEX NAME)



- IC ICM C08L015-00  
ICS C08F008-30; C08K005-01
- CC 39-13 (Synthetic Elastomers and Natural Rubber)
- ST **butadiene** rubber glycidylamino coupler **tire**;  
impact resilience glycidylamino **polybutadiene tire**;  
; abrasion resistance glycidylamino **polybutadiene**  
**tire**; heat buildup resistance glycidylamino  
**polybutadiene**; low temp hardness glycidylamino  
**polybutadiene**; antiaging glycidylamino **polybutadiene**  
rubber **tire**
- IT **Tires**  
(glycidylamino compd.-coupled **butadiene** rubbers for,  
oil-extended, with good balance of properties)
- IT Abrasion-resistant materials  
(**tires**, contg. glycidylamino compd.-coupled  
**butadiene** rubbers, manuf. of)
- IT 28768-32-3DP, reaction products with **butadiene**  
rubber 32144-31-3DP, Diglycidylaniline, reaction products with  
**butadiene** rubber 63738-22-7DP, reaction products  
with **butadiene** rubber 65992-66-7DP, reaction  
products with **butadiene** rubber  
(manuf. of, oil-extended, for **tires**)
- L41 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1988:511552 Document No. 109:111552 Fiber reinforced thermosetting  
resin compositions with coated fibers for improved toughness.  
Maranci, Arutun (American Cyanamid Co., USA). U.S. US 4737527 A  
19880412, 13 pp. (English). CODEN: USXXAM. APPLICATION: US  
1984-602996 19840423.
- AB Composites contg. reinforcing fibers coated with elastomeric  
materials and heat-curable compns. contg. epoxy prepolymers and  
amine curing agents Z(OCOC6H4NHR)<sub>n</sub> (n = 2-3; R = H, alkyl or aryl; Z  
= di- or trivalent group) have high fracture toughness and  
compressive strength. Thus, coating epoxy-sized carbon fibers  
(Celion 6K) in a 3.5% CH<sub>2</sub>Cl<sub>2</sub> soln. of nitrile **rubber**  
(Hycar 1472) and tetrafunctional epoxy resin (MY720), drying at  
90.degree. for 8 min, and coating and curing with a mixt. of

4,4'-bis(diglycidylamino)diphenylmethane 80, tetraglycidoxytetraphenylethane 20, trimethylene glycol di-p-aminobenzoate 44, SiO<sub>2</sub> 6, and TDI-HNMe<sub>2</sub> adduct 1 phr gave laminates having fracture toughness 2.78 lb-in./in.<sup>2</sup> and compressive strength 40,300 psi.

IT 109033-02-5

(carbon fiber-reinforced, couplers for)

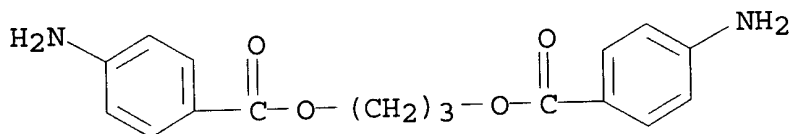
RN 109033-02-5 HCAPLUS

CN 1,3-Propanediol, bis(4-aminobenzoate), polymer with 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis[oxirane] and N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 57609-64-0

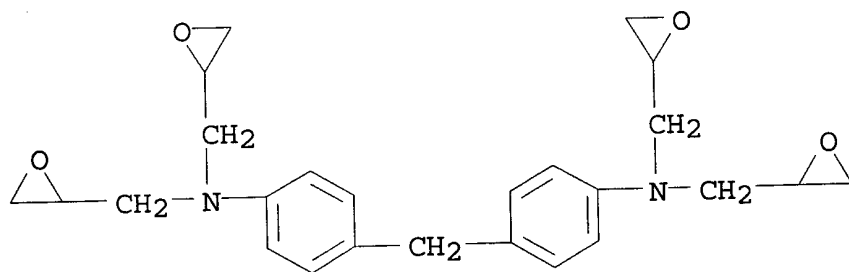
CMF C17 H18 N2 O4



CM 2

CRN 28768-32-3

CMF C25 H30 N2 O4

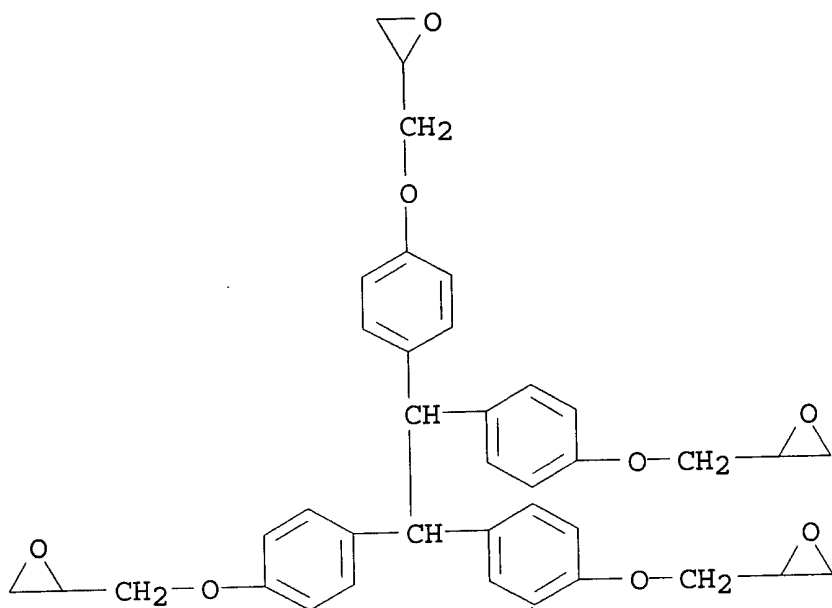


CM 3

CRN 7328-97-4

CMF C38 H38 O8





IT 31305-94-9, 4,4'-Methylenebis(N,N-diglycidylaniline) polymer  
(couplers, for carbon fibers in epoxy resins)

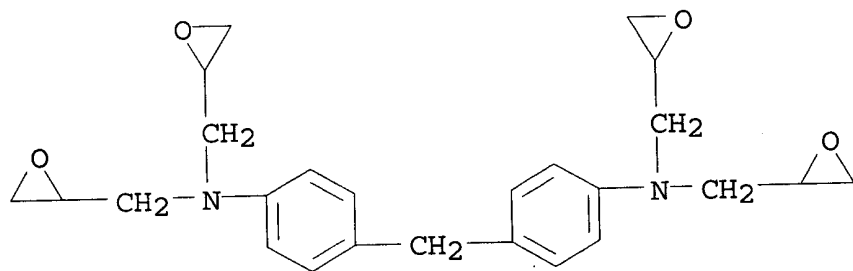
RN 31305-94-9 HCAPLUS

CN Oxiranemethanamine, N,N'-(methylenedi-4,1-phenylene)bis[N-  
(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 28768-32-3

CMF C25 H30 N2 O4



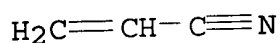
IT 9003-18-3  
(rubber, carboxy-contg., couplers, for carbon fibers in  
epoxy resins)

RN 9003-18-3 HCAPLUS

CN 2-Propenenitrile, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

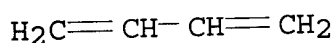
CM 1

CRN 107-13-1  
CMF C3 H3 N



CM 2

CRN 106-99-0  
CMF C4 H6

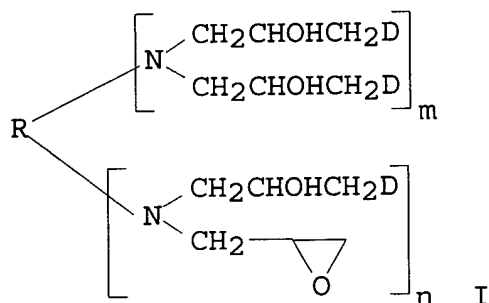


IC ICM C08K009-04  
NCL 523205000  
CC 37-6 (Plastics Manufacture and Processing)  
ST epoxy resin composite fiber; carbon fiber composite; nitrile  
**rubber** coating fiber; **rubber** coating fiber  
composite; **crosslinking** agent epoxy composite;  
aminobenzoate ester **crosslinker** epoxy  
IT Coupling agents  
(epoxy resins and nitrile **rubber**, for carbon fibers in  
epoxy resins)  
IT **Crosslinking** agents  
(glycol aminobenzoates, for carbon fiber-reinforced epoxy resins)  
IT **Rubber**, nitrile, uses and miscellaneous  
(carboxy-contg., couplers, for carbon fibers in epoxy resins)  
IT 109033-02-5  
(carbon fiber-reinforced, couplers for)  
IT 31305-94-9, 4,4'-Methylenebis(N,N-diglycidylaniline) polymer  
(couplers, for carbon fibers in epoxy resins)  
IT 20449-04-1, Triethylene glycol bis(4-aminobenzoate) 26383-62-0  
26383-63-1 32001-91-5, Bisphenol A bis(4-aminobenzoate)  
101156-17-6 116380-49-5  
(**crosslinking** agents, for carbon fiber-reinforced epoxy  
resins)  
IT 9003-18-3  
(**rubber**, carboxy-contg., couplers, for carbon fibers in  
epoxy resins)

L41 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2003 ACS  
1988:95967 Document No. 108:95967 **Diene** polymers, their  
manufacture, and their compositions. Kitagawa, Yuichi; Hattori,  
Yasuo; Saito, Akira (Asahi Chemical Co., Ltd., Japan). PCT Int.  
Appl. WO 8705610 A1 19870924, 74 pp. DESIGNATED STATES: W: JP, KR,  
US; RW: BE, DE, FR, GB, IT. (Japanese). CODEN: PIXXD2.  
APPLICATION: WO 1987-JP159 19870313. PRIORITY: JP 1986-53786

19860313; JP 1986-53787 19860313.

GI



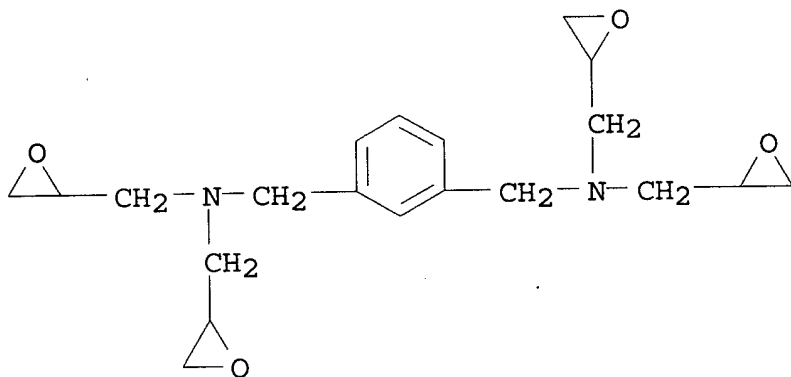
AB **Diene** polymers I (D = **diene** rubbers; R = C1-20 groups contg. active H, Si compd. residues; m = 0 or 1-6; n = 0 or 1-6; m > 1 when n = 0; n > 2 when m = 0) having wt.-av.-mol. wt. 104-106 do not produce corrosive compns. when fabricated and are useful for **tires** having high strength and low heat-buildup and as agents for enhancing toughness of impact-resistant styrene resins. Thus, 1,3-**butadiene**, styrene, 1,2-**butadiene**, hexane, and BuLi were mixed at 125.degree. to give **butadiene** polymn. 99%, then contacted with tetraglycidyl-1,3-bis(aminomethyl)cyclohexane (II) at 100.degree. and mixed with additives to form a polymer showing tensile strength 233 kg/cm<sup>2</sup>, impact resilience (at 70.degree.) 58% and heat-buildup (at 50.degree.) 32.degree.; vs. 228, 56 and 35, resp., for a control prep'd. with SiCl<sub>4</sub> instead of II.

IT 63738-22-7 65992-66-7

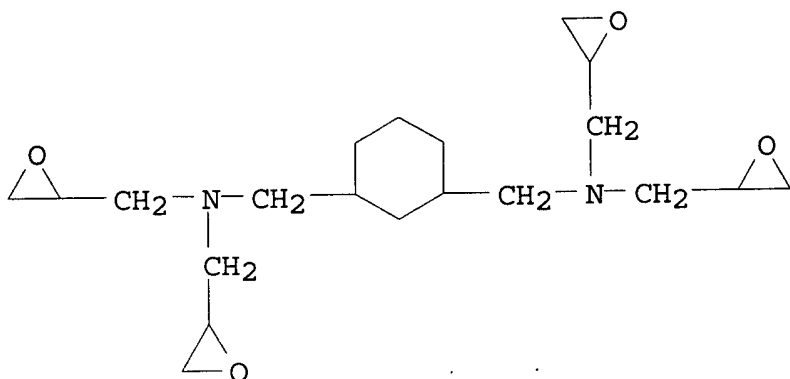
(coupling agents, for **diene** star polymers, for **tires** or impact modifiers for tough resins)

RN 63738-22-7 HCAPLUS

CN 1,3-Benzenedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl) - (9CI)  
(CA INDEX NAME)



RN 65992-66-7 HCAPLUS  
 CN 1,3-Cyclohexanedimethanamine, N,N,N',N'-tetrakis(oxiranylmethyl) -  
 (9CI) (CA INDEX NAME)

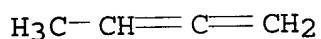


IT 112651-47-5P  
 (manuf. of impact-resistant, coupled with tetraglycidyl diamines)

RN 112651-47-5 HCAPLUS  
 CN Benzene, ethenyl-, polymer with 1,2-butadiene, 1,3-butadiene and  
 (1-methylethenyl)benzene, graft (9CI) (CA INDEX NAME)

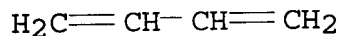
CM 1

CRN 590-19-2  
 CMF C4 H6



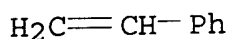
CM 2

CRN 106-99-0  
 CMF C4 H6



CM 3

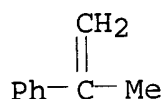
CRN 100-42-5  
 CMF C8 H8



CM 4

CRN 98-83-9

CMF C9 H10



IT 9003-17-2P

(rubber, 1,2-**butadiene**-grafted, reaction products, with tetraglycidyl diamines, star, manuf. of, for tires with low heat buildup)

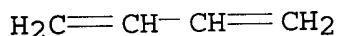
RN 9003-17-2 HCAPLUS

CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

CMF C4 H6



IT 106107-54-4P

(rubber, block, manuf. of, coupled with glycidyl amines, for low heat buildup and impact modifiers)

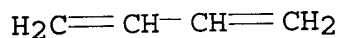
RN 106107-54-4 HCAPLUS

CN Benzene, ethenyl-, polymer with 1,3-butadiene, block (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0

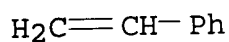
CMF C4 H6



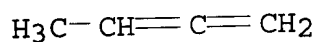
CM 2

CRN 100-42-5

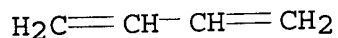
CMF C8 H8



IT 50659-32-0DP, reaction products with tetraglycidyl diamines  
112651-48-6DP, reaction products with tetraglycidyl diamines  
(star, rubber, manuf. of, for **tires** with low  
heat-buildup)  
RN 50659-32-0 HCAPLUS  
CN 1,2-Butadiene, polymer with 1,3-butadiene (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 590-19-2  
CMF C4 H6



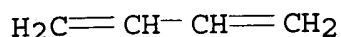
CM 2  
  
CRN 106-99-0  
CMF C4 H6



RN 112651-48-6 HCAPLUS  
CN Benzene, ethenyl-, polymer with 1,2-butadiene and 1,3-butadiene  
(9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 590-19-2  
CMF C4 H6



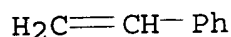
CM 2  
  
CRN 106-99-0  
CMF C4 H6



CM 3

CRN 100-42-5

CMF C8 H8



- IC ICM C08C019-44  
ICS C08F008-30; C08F008-42; C08F297-02; C08L009-00; C08L053-02
- CC 39-13 (Synthetic Elastomers and Natural Rubber)  
Section cross-reference(s): 37
- ST SBR glycidyl amine coupling agent; **tire** low heat buildup  
SBR; **butadiene** styrene block copolymer toughness; allene  
**butadiene** styrene rubber **tire**
- IT **Tires**  
(glycidyl diamine-coupled SBR for, with low heat buildup)
- IT Coupling agents  
(glycidyl diamines, for **diene** polymers, for  
**tires** and impact modifiers for tough resins)
- IT Rubber, synthetic  
(1,2-**butadiene**-1,3-**butadiene**, manuf. of,  
coupled with glycidyl amines, for low heat buildup and as impact  
modifiers)
- IT Rubber, **butadiene**, compounds  
(1,2-**butadiene**-grafted, reaction products, with  
tetraglycidyl diamines, star, manuf. of, for **tires** with  
low heat buildup)
- IT Epoxides  
(amino, coupling agents, for **diene** polymers for  
**tires** or tough resins)
- IT Rubber, **butadiene**-styrene, uses and miscellaneous  
(block, manuf. of, coupled with glycidyl amines, for low heat  
buildup and impact modifiers)
- IT Amines, uses and miscellaneous  
(di-, glycidyl ether-contg., coupling agents, for **diene**  
polymers for **tires** or tough resins)
- IT 63738-22-7 65992-66-7  
(coupling agents, for **diene** star polymers, for  
**tires** or impact modifiers for tough resins)
- IT 112651-47-5P  
(manuf. of impact-resistant, coupled with tetraglycidyl diamines)
- IT 9003-17-2P  
(rubber, 1,2-**butadiene**-grafted, reaction products, with  
tetraglycidyl diamines, star, manuf. of, for **tires** with  
low heat buildup)

IT 106107-54-4P

(rubber, block, manuf. of, coupled with glycidyl amines, for low heat buildup and impact modifiers)

IT 50659-32-0DP, reaction products with tetraglycidyl diamines  
112651-48-6DP, reaction products with tetraglycidyl diamines  
(star, rubber, manuf. of, for **tires** with low heat-buildup)

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1974:493623 Document No. 81:93623 Case bonding system for cast composite propellants. Skidmore, Paul H. (Hercules Inc.). U.S. US 3813308 19740528, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1969-808719 19690318.

AB A process is described for bonding of the elastomeric insulated surface of a rocket-motor casing to the carboxy-contg. **rubber** lining for use with composite propellants. The insulator, such as a **SiO<sub>2</sub>**-filled **butadiene**-styrene **rubber**, is degreased with an org. solvent and a layer of a polyisocyanate, e.g. triphenylmethane triisocyanate, is applied as a soln. in an org. solvent to give a 0.002-0.030 g/in<sup>2</sup> layer, the solvent removed, and a 0.02-0.03 in. coating of a liner compn., such as a CO<sub>2</sub>H-terminated **polybutadiene** (mol. wt. .apprx.5000, CO<sub>2</sub>H content 0.032-0.036 equivs./100 g I). N,N,O-tris(epoxypropyl)-p-aminophenol curing agent, colloidal **SiO<sub>2</sub>**, and a metal salt catalyst-plasticizer dispersion (1.3:1 epoxoy:carbonyl equiv. ratio) applied, the liner cured 6-8 hr at 150.degree.F., a propellant dispersion contg. 13% CO<sub>2</sub>H-contg. **rubber** similar to that of the liner cast against the liner, and the whole cured 7 days at 175.degree.F. Such assemblies had bond stresses at 0.2 in./min crosshead speed in a std. test app. of 380 psi at -70.degree.F and 73, 52, 39, and 24 psi at 77, 170, 250, and 300.degree.F., resp.; the failure always occurred in the propellant.

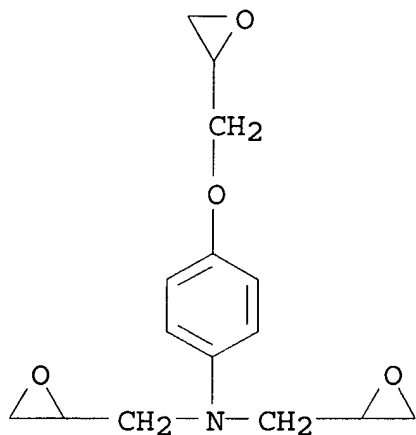
IT 5026-74-4

(curing agent for composite propellants)

RN 5026-74-4 HCAPLUS

CN Oxiranemethanamine, N-[4-(oxiranylmethoxy)phenyl]-N-(oxiranylmethyl)-  
(9CI) (CA INDEX NAME)





IC C06B  
NCL 149109000  
CC 50-2 (Propellants and Explosives)  
Section cross-reference(s): 38  
ST propellant case bonding system; bonding system propellant case;  
**rubber** lining bonding propellant case  
IT **Vulcanizing** agents  
(for **buadiene rubber**, N,N,O-tria(epoxypropyl)-  
p-aminophenol as)  
IT **Rubber, butadiene**-styrene, uses and  
miscellaneous  
(for rocket motor linings for cast composite propellants)  
IT **Rubber, butadiene**, uses and miscellaneous  
(propellant contg.)  
IT Coating materials  
(**rubber**, for rocket-motor **rubber** casings and  
their bonding)  
IT 5026-74-4  
(curing agent for composite propellants)